

Elizabethtown COLLEGE



1996-97 Academic Program



Calendar 1996-97

Fall Semester

August 21-24	Faculty Meetings and RA and PC Training
August 25	Freshmen Arrive
August 28	Registration Day, Evening Classes Begin
August 29	Day Classes Begin, 8 a.m.
October 5-8	Fall Break — No Classes
October 9	Classes Resume, 8 a.m.
October 18	Mid-term
October 19	Alumni Homecoming
November 27	Classes End, 5 p.m.
November 28-December 1	Thanksgiving Recess
December 2	Classes Resume, 8 a.m.
December 10	Classes End, 9:30 p.m.
December 11-17	Final Examinations

Spring Semester

January 13-14	Faculty Meetings and Workshops
January 15	Registration Day
January 16	Classes Begin, 8 a.m.
March 5	Mid-term
March 8-16	Spring Break — No Classes
March 17	Classes Resume, 8 a.m.
March 27	Classes End, 5 p.m.
March 28	Good Friday, No Classes
March 31	Classes Resume, 8 a.m.
May 2	Classes End, 5 p.m.
May 5-10	Final Examinations
May 17	94th Commencement

Summer Session

May 27	Summer Session Begins
July 16	Summer Session Ends

Elizabethtown College is accredited by the Middle States Association of Colleges and Secondary Schools.

The policies and provisions contained in this catalog are subject to the right of the Board of Trustees, the administration, and the faculty to repeal, change, or amend them at any time.

The provisions of this catalog are not to be regarded as an irrevocable contract between Elizabethtown College and the student or between the College and the parents or guardians of the students.

Elizabethtown College complies with the requirements of Title VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, and all other applicable federal, state, and local statutes, ordinances, and regulations. Elizabethtown College does not illegally discriminate against students, prospective students, employees, or prospective employees on the basis of race, color, religion, ethnic or national origin, physical handicap, age, or sex.

Elizabethtown College was founded in 1899 by leaders of the Church of the Brethren. Today, the College is governed by an independent Board of Trustees and affirms a continuing covenantal relationship to the Church of the Brethren.

The Academic Program



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1996-1997

Elizabethtown College

Elizabethtown, Pennsylvania 17022-2298

The High Library
Elizabethtown College
Elizabethtown, PA 17022-2227

Elizabethtown College:

Educational Philosophy and Objectives

The purpose of the founders of the College was to achieve "such harmonious development of the physical, mental, and moral powers of both sexes as will best fit them for the duties of life and promote their spiritual interests." The motto of the College for years expresses this goal: "Educate for Service."

The original charter statement of purpose identified the important outcomes of education as being the development of critical and constructive habits of thought; the capacity for clear and coherent self-expression; the understanding of the natural, social and cultural world; the acquiring of a sense of personal, ethical, and spiritual values and of responsibility to the society; and the acquisition of skills and knowledge in a specialization to make the student an effective and productive member of society. In developing a statement of philosophy and objectives that both reflect our present understandings, the following represents a reasonably broad institutional consensus of the appropriate educational philosophy and goals for the years ahead to which the full college community can and should relate:

Founded by members of the Church of the Brethren in 1899, Elizabethtown College aims to develop sound intellectual judgment, keen moral sensitivity and an appreciation for beauty in the world. This educational process fosters the capacity for independent thought and commitment to personal integrity. In keeping with its historical and religious tradition, the College affirms the values of peace, justice, and human dignity, striving to achieve a distinctive blend of the liberal arts and professional studies. This union of the world of spirit and the world of work is expressed in the College motto, "Educate for Service," and on its seal, *Deus Lux et Veritas*.

The College fulfills this mission by:

- Striving to attain a diverse academic community.
 - Promoting cultural pluralism and international understanding in a collegial community.
 - Creating an environment that encourages the spirit of free inquiry, stimulates intellectual curiosity, and cultivates academic achievement.
 - Developing the skills for critical analysis and effective communication.
 - Designing programs that foster maturity, leadership, and responsible citizenship.
 - Providing campus-wide support services necessary for the development of mind, body, spirit.
 - Serving as a learning, resource, and cultural center for society at large.
- The institutional goals for the academic program at Elizabethtown College, in outline, reflect this general statement of educational philosophy:
1. A threefold purpose in the education of students:
 - a. A general education (core) requirement, developing analytical and relational process of thought, clear and coherent means of self-expression, and a growing understanding of self and environment through distributional and integrative requirements in the liberal arts.
 - b. A specific education requirement or major, preparing the student for advanced studies and/or career opportunities by adding the different experience of specialized in-depth knowledge to the breadth of the general educational requirements.
 - c. A body of electives ensuring flexibility in each student's program that best suits individual needs and interests, whether in general or major areas of study.
 2. Response to contemporary needs for greater international understanding, by providing general education in intercultural studies and languages.
 3. Provision of support in both general education and major programs for cross-disciplinary and interdisciplinary education.
 4. For major disciplines of study, inclusion of opportunities in most of the liberal arts traditions of sciences, fine arts, humanities, and social sciences, and in the professional areas; while maintaining balance between professional and liberal arts programs of study for majors.
 5. Provision for adult educational opportunities in a variety of traditional and non-traditional modes, largely integrated with the regular educational program and faculty.
 6. Fostering an environment supportive of faculty research and professional development.
 7. Supporting as a part of its regular educational program quality experiential-learning programs such as clinical experiences, supervised internships, field study and other off-campus courses, and similar activities.
 8. Continuing to support or to develop as appropriate, strong cooperative programs with other institutions of higher learning.

The Academic Program

Degrees Offered

Elizabethtown College grants two residence degrees: the Bachelor of Arts and the Bachelor of Science.

Both bachelor degrees require the completion of 125 credits, including the completion of all requirements of the major and the Core Program; a grade point average of at least 2.0 in the major; and a grade point average of at least 2.0 overall.

The College offers three additional degrees through the Center for Continuing Education: the Bachelor of Liberal Studies, the Bachelor of Professional Studies, and the Associate of Science.

The Academic Major

The College offers degrees in the following academic majors, within which a number of options are available. The details of major requirements are included in the departmental listings.

Accounting (Business), B.S.
Biochemistry (Chemistry), B.S.
Biology, B.S.
Business Administration, B.S.
Chemistry, B.S.
Clinical Laboratory Sciences (Chemistry), B.S.
Communications, B.A.
Computer Science, B.S.
Computer Engineering (Physics), B.S.
Early Childhood Education, B.S.
Economics (Business), B.A.
Elementary Education, B.S.
Engineering (Physics), B.A.
Engineering Physics (Physics), B.S.
English, B.A.
Environmental Science (Biology), B.S.
Forestry and Environmental Management (Interdisciplinary), B.S.
General Science (Interdisciplinary), B.S.
History, B.A.
Industrial Engineering (Physics), B.S.
International Business, B.S.
Mathematics, B.S.
Modern Languages (French, German, Spanish), B.A.
Music, B.A.
Music Education, B.S.
Music Therapy, B.S.
Occupational Therapy, B.S.

Philosophy, B.A.
Physics, B.S.
Political Philosophy, B.A.
Political Science, B.A.
Psychology, B.A.
Religious Studies, B.A.
Social Studies (Interdisciplinary), B.S.
Social Work, B.A.
Sociology-Anthropology, B.A.

The Academic Minor

Students may elect to pursue an academic minor in addition to their major. Such a program enables the student to acquire depth of knowledge in an area of secondary interest outside the major.

The College offers the following minors. For details, consult the departmental listings.

Anabaptist and Pietist Studies (Interdisciplinary)
Anthropology (Sociology)
Biochemistry (Chemistry)
Biology
Business Administration
Chemistry
Communications
Computer Science
Economics (Business)
English
General Science (Interdisciplinary)
History
Human Services (Interdisciplinary)
International Studies (Interdisciplinary)
Mathematics
Modern Language (French, German or Spanish)
Music
Peace and Conflict Studies (Interdisciplinary)
Philosophy
Physics
Political Science
Psychology
Religious Studies
Sociology
Theater
Visual Arts

The Core Program

Through the Core Program, the College affords each student a broad exposure to the liberal arts and the sciences. The purpose is to make it possible for the student to experience a core curriculum of traditional and innovative liberal arts areas that complement both the more intensive studies in the academic major and minor and the less structured framework of elective courses. Core requirements are of two kinds: the Common Core, which consists of the Freshman Seminar and the Junior/Senior Colloquium; and Areas of Under-

standing in which students may choose from approved Core courses in prescribed academic areas.

Alternatives to the Core Program, or deviations from it, must be approved in advance by the Academic Standing Committee and the dean of the faculty.

Common Core

*Freshman Seminar 3 credits

Entering freshmen take a Freshman Seminar during their first semester.

FS100 Freshman Seminar*

3 credits. The Freshman Seminar provides an educational experience which is composed of several important components. First, it aims to develop intellectual skills such as critical analysis and synthesis, and communication skills such as speaking and writing. Second, it introduces students to the intellectual life of the College and lays the foundation for self-directed, independent thinking. For these reasons, the Freshman Seminar is planned to assist the student in the transition from high school to college.

*Junior/Senior Colloquium 3 credits

All courses in all Areas of Understanding must be completed before students begin the colloquium. The theme of the Junior-Senior Colloquium for the academic year 1996-97 is "Individuality and Community."

JSC300 Junior/Senior Colloquium*

3 credits. In the Junior/Senior Colloquium, students return to the seminar setting and explore a selected contemporary issue of national or world significance from perspectives other than those of the major. They are engaged in serious discourse with students and faculty from other disciplines, examining broader intellectual, social, and ethical concerns associated with liberal learning. This experience culminates in the writing of a major paper which integrates prior learning and the diverse studies of the undergraduate experience.

FS100* and JSC300* may not be used to substitute for a major or minor course or to waive a requirement for the major or minor.

Areas of Understanding

Power of Language 3 credits

Based upon writing skill level, new students are required to take in their first year either English 011 (a college composition preparatory course that does not count for Core or graduation credit), English 100*, Writing and Language (a college composition course), or an advanced 100-level Power of Language course, En 150*, Com 105*, or Ph 110*.

Students placed in English 011 must eventually take English 100* for Power of Language Core credit. Students placed in English 100* must successfully complete English 100 for their Power of Language core. Students who receive AP or transfer credit for English 100* or who enroll in English 100*, cannot receive credit for English 150*, Advanced Writing and Language.

Language is the most important means of communicating in all human societies; it is the ability that, above all others, distinguishes us from other forms of life. In a democratic society, it is the essential means through which policies are formulated, argued for, and accepted or rejected. The hallmark of a liberally educated person is the ability to articulate ideas.

This requirement is intended to introduce students to potentialities of the English language supported by a knowledge of its history. It should provide the opportunity for extensive writing experience in the use of logic and rhetoric.

Courses satisfying this requirement are:

- Com 105* Fundamentals of Speech
- En 100* Writing and Language
- En 150* Advanced Writing and Language
- Ph 110* Logic and Critical Thinking

Mathematical Analysis 3-4 credits

Based upon mathematical analytical skill level, new students are required to take in their first year either Math 011 (a college mathematics preparatory course that does not count for Core or graduation credit), or a 100-level mathematical analysis course. Students placed in Math 011 must successfully complete this course before enrolling in mathematical analysis courses.

This requirement stresses competency in quantitative reasoning and mastery of problem solving skills. Courses satisfying this requirement help students to understand quantitative data, for example, to recognize their use in making future predictions, to acknowledge that they can be employed in support of argumentation, and to realize that they can be manipulated to mislead.

Courses satisfying this requirement are:

- CS 121* Computer Science I
- Ma 105* Mathematics for Liberal Studies
- Ma 121* Calculus I
- Ma 151* Probability and Statistics
- Ph 180* Symbolic Logic

Creative Expression 3 credits

This requirement stresses appreciation of the diversity of human perception and its expression. Courses satisfying this requirement concentrate on the history, theory, creation, performance, and criticism of art forms from music, painting, drama, cinema, architecture, sculpture, and the graphics arts. They acquaint students with basic concepts and language employed in the study and analysis of these works, preparing them to react to art forms and make aesthetic judgments.

Courses satisfying this requirement are:

- Art 105* Drawing I
- Art 106* Ceramics I
- Art 220* Sculpture
- En 110* Literature: Expressive Form
- En 116* Film as Literature
- En 135* Shakespeare Through Performance
- En 212* Forms of the Quest
- En 251* The Literature of Laughter

- En 281* Writing and Analyzing the Short Story
- Mu 106* Interpretation of Music
- Mu 115* Music Fundamentals at the Keyboard
- Th 155* Introduction to Theater Technology
- Th 165* Basic Acting

Cultural Heritage

6 credits

This requirement introduces students to significant historical knowledge which helps them understand themselves and the society in which they live. Through critical analysis of literature, science, art forms, values, social institutions, and governments associated with Western thought, students are provided with the historical consciousness necessary to intelligently respond to major issues of the modern world.

Courses that satisfy this requirement are:

- Art 155* Introduction to Art
- Art 203* Twentieth Century American Art
- Com 245* Communication Analysis and Culture
- En 112* Introduction to Poetry
- En 221* The Literature of Medieval England
- En 222* Literature of the Renaissance
- En 223* English Neo-Classicism
- En 224* English Romanticism
- En 225* Victorian British Literature
- En 226* Twentieth Century British Literature
- En 241* American Literature I
- En 242* American Literature II
- En 246* Minority Voices in American Literature
- Hi 115* Modern European History
- Hi 215* English History
- Hi 216* Modern Britain
- Hi 217* Europe in the Nineteenth Century
- Hi 218* Europe in the Twentieth Century
- Mu 105* Introduction to Music Literature
- Mu 242* Mozart and Eighteenth Century Classicism
- Ph 105* Introduction to Philosophy
- Ph 201* Ancient and Medieval Philosophy
- Ph 240* Modern Philosophy
- Rel 101* Religious Literature of Ancient Israel
- Rel 102* Religious Literature of Early Christianity
- Th 105* Introduction to Theater

Foreign Cultures

and International Studies

3-4 credits

This requirement is satisfied by courses with a contemporary international, cultural, or social frame of reference. In these courses students study the human experience from a cultural point of view different from that of the U.S. and develop understanding of the interdependence among countries.

Courses that satisfy this requirement are:

- An 111* Understanding Human Cultures
- BA 251* Cross Cultural Understanding

- ESL 112* Advanced English as a Second Language and American Culture
- Fr 112* Fundamentals of Language and Culture II
- Fr 211* Communication Through Language and Culture I
- Fr 212* Communication Through Language and Culture II
- Ger 112* Fundamentals of Language and Culture II
- Ger 211* Communication Through Language and Culture I
- Ger 212* Communication Through Language and Culture II
- Hi 220* History of Soviet Union
- Hi 227* History of Africa
- Mu 205* Music of Non-Western Cultures
- PS 245* International Relations
- Rel 221* Western Religions
- Rel 222* Eastern Religions
- Sp 112* Fundamentals of Language and Culture II
- Sp 211* Communication Through Language and Culture I
- Sp 212* Communication Through Language and Culture II

Natural World

7-8 credits

This requirement is satisfied by systematic study of the natural world and must include a minimum of one laboratory course. These courses stress study of subject matter and methods of the discipline but also emphasize ethical and social issues that arise when science influences technological development.

Courses that satisfy this requirement are:

- An 201* Physical Anthropology
- Bio 105* Principles of Biology
- Bio 106* Genetics, Evolution, and Man
- Bio 108* Living With the Environment
- Bio 111* Introduction to Biological Sciences
- Bio 206* Biotechnology
- Ch 101* General Chemistry: Practical Principles
- Ch 105* General Chemistry: Theoretical Principles
- Ch 107* The Chemistry of Life: Energy
- Ch 113* Organic Chemistry I
- Ch 207* The Chemistry of Life: Biochemistry of Cancer and AIDS
- ES 111* The Dynamic Earth
- ES 112* The Geology of Landscape
- ES 215* Meteorology
- Ph 213* Philosophy of Science
- Phy 101* College Physics I
- Phy 103* General Physics I
- Phy 114* Cosmology
- Phy 212* Astronomy
- Psy 208* Health Psychology

Social World**6 credits**

This requirement is satisfied by courses which emphasize the ways in which behavior is shaped, ranging from the formation of the self to the interaction of nations.

Courses that satisfy this requirement are:

- Com 115* Media and Society
- Ec 100* Global Economics: Principles and Issues
- Ec 203* The Greatest Economic Mystery Series
- Hi 201* History of the United States to 1877
- Hi 202* History of the United States Since 1877
- Hi 210* Europe Since 1789
- PS 111* American National Government
- PS 252* Latin American Society
- Psy 105* General Psychology
- Psy 237* Psychology of Women
- Rel 266* Psychology of Religion
- So 101* Discovering Society
- So 204* Population and Global Issues
- So 265* Introduction to Anabaptist and Pietist Groups
- SW 151* Social Welfare Issues in Contemporary Society
- SW 180* Interpersonal Helping Skills
- SW 233* Human Behavior in the Social Environment

Values and Choice**3 credits**

This requirement is satisfied by courses that examine values and morality as they relate to matters of choice and responsible citizenship.

Courses that satisfy this requirement are:

- En 113* Introduction to Drama
- En 114* Introduction to Fiction
- En 121* Money and Status in American Literature
- En 245* Growing Up in America
- Hi 208* Technology and Values in the American Experience
- Hi 212* Race and Ethnicity in American History
- Hi 221* History of Non-Violence
- Ph 115* Ethics
- PS 115* Public Policy Making for the Future
- PS 205* Values and Vision
- Rel 105* Forms of Religious Experience
- Rel 165* Introduction to Peace and Conflict Resolution
- Rel 213* Religion and Gender
- Rel 215* Social Ethics
- Rel 240* Peace and Justice in Biblical Perspective
- Rel 250* Citizenship and Conscience: Peace Church Dilemmas

Physical Well Being**3 credits**

This requirement is satisfied by completing three courses in Physical Well Being, at least two courses of which must be devoted to physical activity. No more than five Physical Well Being credits may be counted for graduation credit. This requirement prepares students for a lifetime commitment to physical activity and well being with an emphasis on individual fulfillment.

Courses that satisfy this requirement are:

- Da 101* Interpretive Movement
- Da 102* Introduction to Ballet
- PE 105* Swimming
- PE 110L* Physical Education for the Elementary School Child Laboratory
- PE 115* Physical Fitness and Wellness
- PE 119* Scuba
- PE 120* Aerobics
- PE 125* Tennis
- PE 130* Bicycling
- PE 140* Bowling
- PE 146* Racquetball
- PE 150* Volleyball
- PE 161* Adaptive Physical Education
- PE 165* Golf/Badminton
- PE 175* Archery/Badminton
- PE 181* Self-Directed Physical Education Activity
- PE 185* Basketball
- PE 190* Horsemanship
- PE 194* Skiing
- PE 195* Soccer
- PE 218* Water Safety Instruction
- Psy 108* Addictions

Additional Requirements:

- Students must take at least four 200-level Core courses to complete the Core Program. Prerequisites for 200-level Core Program courses include completion of the Freshman Seminar; Mathematical Analysis; Power of Language; and either three other 100-level Core Program courses or sophomore standing.
- In Areas of Understanding requiring two or more courses, students must take the courses in different disciplines.
- Physical Well Being courses are excluded from the above restriction and do not satisfy the 100-level prerequisite requirements to take 200-level Core Program courses.
- Students may count only one course in their major department to meet Core Program requirements. The major department course must be an elective in the department and may not fulfill a major requirement.
- Students are required to complete the appropriate level of mathematics, English, and/or modern language courses as determined by the College.
- Seniors may not enroll in 100-level Core Program courses except with the permission of the provost/dean of the faculty.

Program Variations and Options

In addition to majors and minors, Elizabethtown College offers a number of alternative learning opportunities both on and off campus.

On-campus study includes special programs which emphasize individual study and close work with a member of the faculty.

Off-campus opportunities include joint programs with academic institutions or clinical facilities, or study abroad.

On-Campus Study

Elizabethtown College recognizes the advantages and the need of education and study outside the traditional classroom, and offers the following opportunities:

Independent Study is a way for students to pursue individual investigation and/or reading in an area of special interest, or to advance competencies in the major/minor area. (It is not used simply to assemble credits for graduation or to replace a course listed in the curriculum.)

Independent Study is available to students with junior or senior status and with a minimum grade point average of 2.0. Students pursuing an Independent Study can expect to do extensive research, reading, writing, and/or creative work resulting in a major paper, presentation, work of art, or other project agreed upon by the supervising faculty member and the student.

The work is initiated by the student and progresses largely unsupervised. Independent Studies are usually registered for 1-3 credits per study. Normally, a student may carry only one Independent Study at a time, or two Independent Studies at the discretion of the Independent Study Committee. Independent Study may not be used toward Core Program requirements.

Independent Study is not tied to the academic calendar (a project may be started or finished at any point). However, the project must be submitted to the Independent Study Committee prior to the preregistration period for the semester during which it will be begun. Following approval of the Independent Study Committee, the student must officially register the project with the Office of Registration and Records during the registration period for the semester during which it will be completed. Forms are available in the Office of Registration and Records. Any requests for exceptions to the policy must be made to the Academic Standing Committee.

Directed Study is a second type of study available to students at Elizabethtown College. In contrast to independent study of a special topic, Directed Study is undertaken for a regular course in the curriculum which is not being offered in a given semester. This method of study should be used by the student who needs rather frequent conferences with the professor.

An additional surcharge is assessed the full-time

student who registers for Directed Study. Part-time students who are granted permission to register for a Directed Study course pay the same surcharge. Full-time students whose course load exceeds 17 hours as a result of the Directed Study registration are charged the current part-time rate for tuition for those hours in excess of 17, plus the surcharge for all Directed Study credits.

Tutorials are available where remedial work is necessary for the student to profit from a course in the curriculum. A tutorial involves more frequent meetings between professor and student than either Independent Study or Directed Study. It is the responsibility of the student to locate a professor who is willing to enter into the tutorial agreement. Generally a faculty member will not teach more than one tutorial per semester.

Any student who enters into a tutorial agreement is responsible for the regular tuition and a surcharge.

Note: Students must register for Directed Studies and Tutorials *prior* to beginning course work. Registration forms are available in the Office of Registration and Records.

Three-Year Degree Program

This program offers well prepared, highly qualified students an opportunity to complete a bachelor's degree in three years at considerable cost savings. The plan is ideal for students who plan to attend law, medical, or graduate schools. Students interested in this accelerated degree program must apply for admission to it at the time they apply for admission to the College.

As a guideline, candidates should rank high academically in their high school classes, be taking a challenging senior year program, demonstrate high intellectual curiosity, and be motivated and prepared for the vigor of a demanding, but rewarding three years. The results of standardized tests, letters of recommendation, and the strength of the student's extracurricular and leadership record are also important.

Students in the plan can participate fully in college life despite taking a heavier than normal academic load each semester. The same faculty advisor works with a student for all three years in planning the individual's academic program.

Students who decide, at any point, that the accelerated plan is not right for them can opt to enter the regular four-year degree sequence.

Students interested in the three-year program should contact Dr. Robert Wheelersburg, program coordinator.

Off-Campus Study

Study Abroad

The six colleges associated with the Church of the Brethren cooperate in the **Brethren Colleges Abroad** (BCA) program, offering two types of international experiences.

The first involves study in an environment which

features a foreign language. For example, students may study at Phillips-University, at Marburg/Lahn, Germany; at the University of Strasbourg, Strasbourg, France; at the University of Nancy, Nancy, France; at the University of Barcelona, Barcelona, Spain; at the University of Veracruzana, Xalapa, Mexico; and at the University of Azuay, Cuenca, Ecuador.

Students in the foreign language setting receive intensive language instruction prior to the opening of the university.

The second type of experience occurs in a setting where knowledge of a second language is not a requirement. Programs of this nature exist at the Dalian Institute of Foreign Languages, Dalian, China; the Cheltenham and Gloucester College of Higher Education, Cheltenham, England; the LaVerne University of Athens, Athens, Greece; and the Hokusei Gakuen University, Sapporo, Japan.

A wide selection of courses in the social sciences and humanities is available in the BCA programs.

To qualify for the BCA program, the student should have a 3.0 grade point average. Students bound for Germany must have completed the equivalent of German 212 and have approximately a *B* average. Although most students bound for France or Spain must also have completed the equivalent of French 212 or Spanish 212, outstanding students who have completed French 211 or Spanish 211 will be accepted. Other qualifications include seriousness of purpose, good character, demonstrated potential for social adjustment, and a basic understanding of the United States and the host country.

The credits earned abroad are transferred toward the degree at Elizabethtown. Students' courses are approved by the director of records prior to departure. Interested students should contact Dr. Kurt M. Barnada, BCA program coordinator, for information and should confer with their major advisor.

Affiliated Institution Programs

In these programs, students study at the College and at affiliated academic institutions or clinical facilities. Five major programs are offered with other academic institutions: pre-forestry with Duke University; pre-engineering with The Pennsylvania State University; biology health professions and pre-allied health with Thomas Jefferson University; and the Washington Semester and World Capitals program with The American University.

In the **Pre-forestry** major, the student spends three years at the College and an additional year in professional studies at Duke University, after which the College grants the bachelor of science degree; a second year at Duke leads to a master's degree in forestry or environmental management from Duke University. For further details, see the interdisciplinary section of this catalog.

Pre-engineering is a 3-2 program with The Pennsylvania State University. After completing three years at Elizabethtown College, the student transfers to University Park, completes two years of

study in an engineering major, and receives a bachelor of arts degree from Elizabethtown College and a bachelor of science degree from The Pennsylvania State University. For further details, see the description in the Department of Physics listing.

The **Biology Health Professions** major is a 3-2 program with Thomas Jefferson University and other selected colleges and universities which grant degrees in the allied health sciences. The student spends three years at the College as a biology-allied health major. Upon the transfer of up to 29 credits from the upper level institution, a bachelor of science degree is awarded by Elizabethtown College. Completion of the remainder of the professional program results in the awarding of a bachelor of science degree from Thomas Jefferson University or another university.

In the **Pre-allied Health programs**, the student spends two years at the College and an additional two years at an affiliated institution. For further information, see the description in the Department of Biology listing.

Through an affiliation with The American University, the College offers the **Washington Semester** and **World Capitals Programs**.

The *Washington Semester Program* offers a chance to study in Washington, D.C., and take advantage of the resources of the nation's capital. Students in the program work with the policymakers and business professionals who play a vital role in American government and culture. Full semester credit is earned by studying in one of nine areas: American politics, international politics, peace and conflict resolution, economic policy, justice, museum studies, and the arts, journalism, international business and trade, or international environment/development.

The *World Capitals Program* offers a semester of study abroad in London, Budapest, Brussels, Vienna, Santiago, Rome, Buenos Aires, Prague, Beijing, Madrid, Poznan, or Moscow. The programs require a minimum 2.5 grade point average, sophomore status, and two years of college-level language study.

The College also offers a number of majors in which work at affiliated clinical facilities constitutes an important part of the students' education. In music therapy, occupational therapy, social work, and medical technology, students combine work at the College with first-hand experience in hospitals, clinics, social work, and therapy programs. For detailed descriptions, see the listings under the departments of Fine and Performing Arts, Chemistry, Occupational Therapy, and Social Work.

Internships

Some academic departments offer internships for credit as part of approved academic programs. Other types of internships may be initiated by the individual student or be offered by other educational institutions, agencies, businesses, or organizations. For such internships, the College publishes guidelines, copies of which are available

from the director of records or a department chair. Students are advised that the College will not grant academic credit or recognition for such internships without *prior* approval by the appropriate faculty member and administrative officer.

Credit by Examination

Three ways exist for regularly admitted students to receive academic credits and/or advanced placement by examination: (1) the College Entrance Examination Board's (CEEB) Advanced Placement Program (AP), (2) the College-Level Examination Program (CLEP), and (3) successful achievement on an Elizabethtown College faculty examination (Challenge Testing).

CEEB Advanced Placement Examinations

The College, with the approval of the department concerned, grants advanced placement and credit to students who perform satisfactorily on a CEEB Advanced Placement Examination.

CLEP Examinations

Credit is awarded for appropriate scores on the CLEP examinations according to the following guidelines.

1. General Examinations

Persons who have completed high school (or its equivalent) at least three years prior to taking the CLEP examinations may be awarded Elizabethtown College credits according to the following standards.

- a. All General Examinations must be successfully completed prior to the achievement of sophomore status (30 or more recorded college credits).
- b. Up to 29 credits may be awarded for scores at the fiftieth percentile or higher on the General Examinations. None of the credits may duplicate college credits already recorded on the transcript or credits for course work in progress at the time of the examination.
- c. For the Natural Science Examination, a maximum of eight credits will be awarded for scores at or above the fiftieth percentile. Three of these credits may be applied to the Core Program requirements in Natural World.
- d. For the examinations in Humanities, and Social Sciences and History, a maximum of six credits for each examination will be awarded for scores at or above the fiftieth percentile. Up to three credits from each area may be applied to the corresponding requirement in the Core Program.

- e. For the English Composition and Mathematics Examinations, a maximum of three credits will be awarded for scores at or above the fiftieth percentile. These credits may not be applied to the Core Program.

2. Subject Examinations

Credit will be granted for scores at or above the fiftieth percentile. Subject Examinations in an area in which the student will take additional work (either by requirement or elective) must be successfully completed prior to enrolling in college courses in that subject area.

Challenge Testing

Challenge Testing is a comprehensive term encompassing all tests prepared and/or administrated by Elizabethtown College faculty.

There are two types of Challenge Tests:

1. **Tests for Academic Credit** are *Challenge Examinations* in which a regularly admitted Elizabethtown College student requests to be examined for credit in a particular course in the Academic Program. Requests for Challenge Examinations must be approved by the chair of the department in which the course is listed. Practicums, internships, and research courses are excluded from the Challenge Examination option as are Freshman Seminar and Junior, Senior Colloquium in the Core Program.
2. **Tests for Placement and/or Waiver** are those given for placement in a course sequence such as those given in modern languages and mathematics. No credit is awarded for such testing.

All Challenge Testing is graded on a pass/no pass basis. A grade of *pass* indicates that the credit and/or advanced placement is to be awarded.

Challenge Tests given at the initiative of the College are administered without fee to the student. There is a per test fee for Challenge Tests given at the request of the student. The fee is for the test itself and is charged regardless of the test results. The fee for a test for academic credit is \$90. In addition, 50% of the appropriate part-time tuition rate in effect at the time the test is administered is charged for academic credit awarded as a result of performance on Challenge Tests.

The fee for a Test for Placement and/or Waiver is \$60.

Placement Testing

During the summer orientation program all new students take a mathematics placement test. In addition, students with two, three, four or five years of language instruction must take the appropriate modern language placement test. Students who have studied a language for less than two full years, and students who have

never studied a language, do not take the test.

The languages tested are French, German and Spanish. If students have studied more than one of these languages, they take the placement test in the language which they have had the most intensive study or the language in which they wish to pursue study further at the college level.

Students who wish to use a modern language to fulfill the Foreign Cultures and International Studies Area of Understanding in the Core Program complete either Modern Language 112 or 211 or 212. Language background and placement test results determine the appropriate level of college language study (112, 211 or 212). Students who demonstrate competence at the 111 level enroll in 112. Students who demonstrate competence at the 112 level enroll in 211. If competence is demonstrated at the 211 level, the appropriate course is 212.

The mathematics placement test determines placement in Math 011, Intermediate Algebra, or a 100-level mathematical analysis course. Students placed in Math 011 must successfully complete this course before enrolling in other mathematics or mathematical analysis courses.

College Assessment Programs

Because the College needs to evaluate its programs regularly, students will be expected to participate in various formal and informal assessment projects. Examples of such activities include: having a day set aside for testing during the academic year, completing standardized and other tests, completing questionnaires, inventories, and the like, and participating in alternative assessment strategies, such as portfolio evaluations.

The Student's Program

The student's academic program in the first two years is largely intended to fulfill the requirements of the Core Program, which provides a broad education. In the junior and senior years, most curricula afford time for a wide range of electives in addition to the prescribed courses required in a major program.

Academic Advising

Each student who is enrolled in a degree program is required to complete a major. In addition, students have the option of pursuing a second major and/or one or more minors outside their major discipline. Advisors are assigned for majors, second majors, and minors. (Certain non-degree students are also assigned advisors.)

Freshman Advising Program. The Freshman Advising Program is designed to touch on all aspects of the freshman experience. The goal is to assist freshmen in realizing the maximum educational benefits available to them by helping them to better understand themselves and to learn to use the resources of the College to meet their special educational needs and aspirations. Course selection is included but is not the primary task to be accomplished.

Upperclassman Advising. Upperclassmen who have declared a major are assigned an academic advisor from their major department. Upperclassmen who have not yet declared a major are assigned an advisor from the Office of Personal and Career Counseling Services.

All advisors work closely with students during the preregistration period for course selection for the coming semester. Consultation with the advisor also occurs during the schedule change period and the drop-add period at the beginning of each semester. Departmental advisors also provide assistance in regard to graduate or professional school and/or career planning.

Student Responsibilities

Students are required to consult with their major advisors as to course selection, course sequences, graduation requirements, etc. (Consultation with the second major or minor advisor is an expectation but not a requirement.) Preregistration Course Request Sheets, Request for Schedule Change forms, and Drop/Add forms require the major advisor's signature, as do certain other forms and documents from the Office of Registration and Records.

The advisor's signature on various documents indicates that the student has consulted with the advisor; *however, it is the student's responsibility to ensure that all graduation requirements have been met and that other requirements, regulations, or deadlines have been observed.*

Advising sheets for academic majors and minors are available in the Office of Registration and Records. These sheets are helpful in noting the completion of program requirements.

Declaration and Change of Major/Minor

Students are required to complete a major. In addition, students have the option of pursuing a second major and/or one or more minors outside their major discipline.

Declarations and changes of majors and minors are initiated by the student and facilitated by the Office of Personal and Career Counseling Services. When a change of major or minor occurs, a student's records are transferred from one academic department to another.

Change of Personal Information

Any change of name, address, telephone number, or marital status must be reported in writing to the Office of Registration and Records immediately. This informa-

tion must be kept current so that there will be no delay in receipt of information from the College.

Changes of name, gender, social security number, etc. require legal documentation.

Full-time/Part time Status

A student taking 12 or more credits per semester at Elizabethtown College is considered a full-time student and pays full tuition and fees. A student taking fewer than 12 credits per semester pays the regular semester credit rate plus applicable fees, and receives a library card and full use of the library facilities.

The National Collegiate Athletic Association regulations stipulate that a student must carry a minimum of 12 credits per semester to be eligible for intercollegiate athletic competition.

Course Load

Since the completion of at least 125 credits is required for a bachelor's degree, a student who plans to graduate in four years must complete satisfactorily an average of approximately 16 credits for each of eight semesters. However, some students wisely elect to take a lighter academic load in order to do better work and choose to attend a summer session or a part of a fifth year.

Overload Credits

Students may carry up to 17 credits in a semester or nine credits in a seven-week summer session. Students desiring to take credits in excess of these limits must have achieved a cumulative grade point average of 2.7 and have the approval of the associate dean of the faculty. The maximum load is 19 credits in a semester or 10 credits in a seven-week summer session. An additional tuition fee is charged for credits in excess of 17 credits in a semester. A petition form for overload credit is available in the Office of Registration and Records.

Repeating Courses

Courses which may be repeated (see below) must be taken at Elizabethtown College. The most recent grade is final and is used in the calculation of semester and cumulative grade point averages. When repeating a course, a student must file the appropriate repeat registration card in the Office of Registration and Records. Failure to do so will result in a duplication of credits carried, a possible delay in graduation, and a decrease in the cumulative grade point average.

Courses which may be repeated are as follows:

1. A student may repeat any course in which he or she receives an *F* or *NP*.
2. Ordinarily a student may not repeat a course in which a grade of *D* is earned. However, upon the request of the student's advisor and the approval of the student's major/minor department chair, a student may repeat a course in the major/minor, a course required by

the major/minor, or a course that is prerequisite to a Core Program requirement. *The student must repeat the course in which the D grade was received within one year of the original enrollment in the class (or the next semester in which the course is offered if the course is offered less frequently than once a year).*

3. A course in which a *D* or *F* was earned must be repeated in the same manner in which it was originally enrolled.

Auditing Courses

Students in good academic standing (2.0 or better) may elect to audit courses provided: (1) they do not preempt regularly enrolled students; (2) they have the permission of the professor teaching the course.

The requirements for the audit are determined by the professor. Upon completion of all such requirements, the audit is posted on the student's permanent record card. Audit courses carry neither academic credit nor grade.

Audit credits are included in the total credits to determine full-time status and overload charges. A fee is charged on a per credit basis for part-time students who wish to audit courses. Auditors, both full-time and part-time, must also pay any additional fees for labs, studio supplies, and other direct costs. Students may add a course for audit or change a course registration from audit to credit during the first week of class only. Change of course registration from credit to audit cannot be made after completion of the fourth week of the semester. Once a course has been audited, it may not be taken for credit. Likewise, a course that has been completed for credit may not be repeated and recorded as an audit course.

Transfer of Credits

An Elizabethtown College student who wishes to transfer credits to Elizabethtown College must obtain permission in advance from the Office of Registration and Records. The College transfers credit (but not grades or quality points) for course work taken at another regionally accredited institution for which a grade of *C-* or better is obtained. The College is not obligated to accept course work for which written permission was not obtained *prior* to enrollment at another institution.

Students who have achieved junior status (60 credits) either through work at Elizabethtown College or through a combination of work at the College and another institution are not permitted to transfer additional credits from a two-year institution to the College. Such students may transfer credits from four-year institutions, but only upon the prior approval of the director of records. Students must request that the registrar's office of the transferring institution send an official transcript to the Office of Registration and Records at Elizabethtown College. Facsimile (fax) copies and student delivered transcripts will not be accepted.

Students desiring to have a transcript of credits sent from Elizabethtown College to another institution must

make the request in writing to the Office of Registration and Records, in person or by mail, at least one week prior to the date needed.

The records of transfer students from non-accredited and National/American Association institutions are evaluated on an individual basis.

Transcripts

Two transcripts of record are provided free of charge to students in regular attendance and of freshman, sophomore, or junior status. Seniors receive a maximum of five transcripts of record free of charge when applying to graduate/professional schools or for employment. Two copies of the final record are also available free to each student after graduation. A charge of \$2. per copy is made for all other transcripts. No transcripts of record are furnished to students whose account is not paid in full.

Transcript Requests must be received by the Office of Registration and Records at least one week prior to the date needed. Federal law requires that all requests must be made **in writing** *by the student*. Neither telephone requests nor facsimile (fax) requests can be honored; nor can parents, friends, spouses, or potential employers request transcripts.

Transcript request forms are available in the Office of Registration and Records; however, letters will be accepted in lieu of the request form. All requests must include:

1. The name(s) and address(es) to which the transcript is to be sent.
2. The dates of attendance at the College.
3. Student's full name (including maiden name, if applicable).
4. Student's signature.
5. The \$2. fee, if applicable.

Transcripts issued directly to the student are stamped "STUDENT COPY" and may not be acceptable to other institutions or potential employers.

Elizabethtown College does not send or accept facsimile (fax) copies of transcripts.

Registration

Students are required to register for classes on those days designated on the College calendar. Students registering later than the days specified are charged a late registration fee. No registrations are accepted after the first week of a semester.

A student may register either as a regular or a non-degree student, and as a full-time or part-time student. Regular students only are degree candidates, and they must be in an approved major.

A student registers for courses – not for a time or a professor. There is no guarantee that a student will be registered for every course at the time requested.

Many courses have prerequisites, and students are reminded of their responsibility for meeting all pre-

requisites and for taking courses in proper sequence.

Preregistration

To preregister for the next semester, a student must have met all financial obligations, including the payment of any required preregistration deposit. Students who do not preregister during the preregistration period cannot be guaranteed space in the residence halls or classrooms.

Students preregister for the fall semester in April. Preregistration for the spring semester takes place in November. Master schedules and course request sheets are furnished to the student approximately three weeks prior to the preregistration period to allow ample time to make an appointment with the advisor. Students who fail to preregister before the close of the preregistration period are charged a late preregistration fee.

Evening students should check with the Office of The Center for Continuing Education for details about registration.

Registration Holds

A student's registration or preregistration may be delayed as a result of items such as unpaid account balances, incomplete academic records, disciplinary sanctions, or incomplete health records. For full-time students, the health record must include a Health Services Physical form and evidence that all required immunizations have been received.

Schedule Changes

Students who have preregistered may make changes on a space available basis. Schedule change request forms are available in the Office of Registration and Records.

Change of Registration

Courses may be added within the first week of a semester and may be dropped without academic penalty during the first four weeks of a semester. Course drops and adds must be approved by the academic advisor and completed through the Office of Registration and Records. A student is not withdrawn from a class simply by discontinuing attendance or by notifying the professor. The completion of any registration change is the responsibility of the student, not the faculty member.

Adding Courses

Students may add courses to their schedule during the first week of a semester. Drop/Add request forms are available in the Office of Registration and Records. The completed form must be signed by the academic advisor and returned to the Office of Registration and Records; students are not considered to be registered until this is done.

Dropping Courses

Courses dropped from a student's schedule during the first four weeks of a semester are removed from the student's academic record. Drop/Add request forms are available in the Office of Registration and Records. The completed form must be signed by the academic advisor and returned to the Office of Registration and Records; the course drop is not complete until this is done.

Class Absences

Class Attendance

Class attendance policy is determined individually by the faculty members. It is the position of the College that the above-average student should be given some freedom of judgment as to attendance needs, while the average student must, of necessity, be encouraged or required to maintain a record of regular attendance.

Each faculty member announces his or her attendance policy at the start of each semester. A professor or the College may dismiss a student from a course for excessive absences. Such dismissals in weeks 1-4 of the semester result in removal of the course from the student's record; after the fourth week, a grade of *WF* is recorded for the course. A student may appeal to the Academic Standing Committee for reinstatement to the course.

Students are responsible for consulting with the professor in the case of absences due to ill health or other personal problems.

Long-Term Absences

A long-term absence from classes or from campus may result in mandatory withdrawal from the College. After 15 consecutive class days of absence from all classes, a student is considered to have withdrawn from the College. (Students absent for verified medical reasons will be granted a Medical Withdrawal (see below).)

Withdrawal Policy

Withdrawal from Classes

Students withdraw from classes through the Office of Registration and Records. The course will not appear on the permanent record if the student withdraws on or before the end of the fourth week of the semester. From this time to the end of the eleventh week, a withdrawal will result either in a grade of *W* or *WF*. All withdrawals after the end of the eleventh week of the semester receive grades of *WF* unless the withdrawal is from College and is for medical reasons, in which case a *W* is recorded for each course. *A student may not withdraw from individual courses for medical*

reasons. A grade of *WF* is calculated into the student's average as though it were an *F*.

Withdrawal from College

Students who withdraw from the College during a semester also withdraw from all of their classes for that semester. Full-time students withdraw from the College through the Office of Personal and Career Counseling Services; part-time students withdraw through the Office of Registration and Records. *Students who withdraw during the semester are expected to leave the campus as of the effective date of their withdrawal.*

For purposes of billing, room reservation, academic responsibility, etc., the effective date of withdrawal is the date on which the completed official notice is returned to the Office of Personal and Career Counseling Services or the Office of Registration and Records. A student who withdraws without notification receives no refunds and may incur the full room penalty. Failure to comply with withdrawal procedures may result in loss of the privilege of readmission to the College and the right to the release of a transcript of credits earned.

Medical Withdrawal

A student may withdraw from the College for reason of a serious illness or similar, medically-related circumstances. Medical Withdrawal assumes an incapacity that prohibits acceptable academic performance, not simply a hardship or inconvenience. Such withdrawal requires written verification from a physician. Upon receipt of verification, a proportionate refund is granted.

Medical Withdrawal is withdrawal from the College and, therefore, from all courses. A student does not selectively withdraw from individual courses under the rubric of *medical withdrawal*.

Leave of Absence

A student may take a leave of absence from the College to study in an approved off-campus program.

To arrange a leave, a student should contact the faculty coordinator or director of the appropriate program. Application must be made no later than the preregistration period of the semester prior to the one in which the leave begins. Administrative fees for off-campus programs are payable at the time a student applies for the leave. A leave is approved upon the student's acceptance into the program.

Preregistration information is sent to students on leave approximately March 15 and October 15. The preregistration form and a \$150 deposit must be returned to the Office of Registration and Records by May 1 or December 1 to ensure a place in the College and in courses.

Readmission

Students who leave the College in good academic standing (minimum 2.0 cumulative grade point average) gain readmission by written request to the Office of Registration and Records. Students who leave the College while in academic difficulty (below 2.0 cumulative grade point average) must petition the Academic Standing Committee for readmission.

Credits, Grades and Quality Points

Credit

"Credit" is equivalent to "semester hour." A semester hour signifies work completed in one 50-minute recitation period per week, or two or more 50-minute laboratory periods per week, for a semester of 15 weeks, or an equivalent learning experience.

Grades

Grades are reported as *A, B, C, D, F*. Plus and minus distinctions are made. Designations of *I, W, WF, P, NP* and *AUD* are used in appropriate situations.

Grade definitions are:

A	Distinguished
B	Above Average
C	Average
D	Poor
F	Failure
I	Work Incomplete
W	Withdrawal from course
WF	Withdrawal failing
P	Pass
NP	No Pass (failure)
AUD	Audit

Grades submitted to the Office of Registration and Records are considered to be official at the time submitted. Official grades can be changed only by successful appeal under the College's Grade Appeal Policy or by an instructor's petition to the dean of the faculty to correct a documented grading error.

Grade appeals and evidence of grading errors must be submitted within 30 days of the date on which the grade was formally issued from the Office of Registration and Records. Exception to the 30-day time limit requires formal petition to and approval of the Academic Standing Committee.

Incomplete Grades

A grade of "I" may be obtained by making a formal request to the professor of the course in question. The student and the professor must sign a written agreement which specifies the nature and the quantity of the work

to be completed and the projected date of completion. Grades of "I" are assigned for *extenuating circumstances* only. They are not given simply to allow additional time to complete required course work or to improve course grade. In addition, a professor may use the "I" in cases of suspected academic dishonesty.

All grades of "I" received in the fall semester must be removed by April 1. Those received in the spring semester or summer session must be removed by October 1. Failure to do so results in a grade of *F*.

Quality Points

A 4- point quality point system is used. Quality points are assigned as follows:

Letter Grade	Quality Points per Semester Hour of Credit
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7
D+	1.3
D	1.0
D-	0.7
F, WF	0.0

Grade Point Average Calculation

The grade point average is dependent upon the credits attempted and the quality points earned. To determine the quality points earned for a semester, multiply the credits for each course by the quality points for the grade earned in the course, sum the results and divide by the total credits attempted in the semester. Courses in which a grade *F* or *WF* is received are included in the calculation. Courses in which a grade of *W* or *I* is recorded are excluded, as are *Pass/No Pass* and Audit courses.

The cumulative grade point average, and the grade point average in the majors and minors are calculated in the same manner as the semester grade point average. All courses that could fulfill a requirement for the majors or minors, whether in excess or not, are used for the grade point average calculation.

Pass/No Pass Grading

Courses registered on the *Pass/No Pass* basis earn credits (for grades of *P*) but are not included in the calculation of the grade point average.

Students may elect to take Physical Well Being activity courses on a *Pass/No Pass* basis. In addition, students may select one other course per semester to be graded in this manner under these conditions:

1. A student must currently be of junior or senior standing (60 or more credits).
2. The cumulative average must be 2.75 or higher.
3. The selected course may carry no more than four credits and **must be a free elective**. It may not satisfy a Core Program requirement, and may not be a course that could fulfill a requirement for the student's major or minor.
4. No more than four courses in total (excluding Physical Well Being activity courses) may be taken under this grading option.

Pass/No Pass registration forms are available in the Office of Registration and Records. Once a course is registered under the Pass/ No Pass option, it may not be changed. Grades of D- or higher are recorded as Pass; grades of F are recorded as No Pass.

Early Warning System

Mid-term grade reports are not issued. However, an early warning system is used. Students carrying D or F grades in 100 or 200-level courses at the end of the fifth week of the semester are notified of their deficient performance. Students who are deficient are encouraged to consult with their instructors and to make use of Learning Center resources in order to improve their performance.

Final Examination Policy

All academic courses are expected to conclude with a final examination administered during the assigned time of the examination period. **Within the last three meeting days for classes (not for any individual course) prior to final examinations, no unit tests or quizzes of any type may be administered. Due to the structure of courses involving laboratory examinations/practica, a laboratory examination/practicum can be given during these final three days prior to final examinations. In addition, major papers and projects can be assigned due dates that fall within the last three meeting days for classes, providing the due dates are specified in the syllabus.**

A laboratory section, an advanced seminar – in which an assigned paper or project is the major activity, a performance class – in which a recital or similar artistic performance is required, an internship, or a practicum may or may not have final examinations depending upon the judgment of the instructor. Any faculty member seeking an exception to the final examination rule for an academic course shall first secure the approval of the department chair and then that of the provost.

Students as well as faculty members are expected to abide by the published examination schedule. However, students with three examinations in one day may request of a professor that one examination be rescheduled during the examination period. There is no obligation on the part of the faculty member to reschedule the examination. All requests for rescheduling an examina-

tion must be made at least five class days before the start of the final examination period. Students with four examinations in one day may request that one or two of the examinations be rescheduled, following the same procedure. When a scheduling conflict cannot be resolved between faculty member(s) and student, the student may take her or his case to the provost.

Class Standing

The student's class standing is determined on the basis of the number of credits earned. After earning 30 credits, a student is considered a sophomore; with 60 credits, a junior; with 90 credits, a senior.

Rank in Class

Class rank is determined, for students pursuing degree programs, once a year and is based on their cumulative grade point average using only the credits, grades, and quality points earned at Elizabethtown College. Class ranks for the freshmen, sophomore, and junior classes are determined at the completion of the spring semester. Rank in class for graduates is also determined after the spring semester and includes graduates from the previous summer and fall as well as from the current spring semester.

Academic Standing

Academic Good Standing

Students in academic good standing maintain a minimum 2.0 cumulative grade point average.

Academic Probation

Academic probation means that a student is in danger of being dismissed from the College for academic reasons. Students who fall into the following categories are placed on academic probation:

<i>Semester hours</i>		<i>Cumulative Grade Point Average below:</i>
<i>Attempted</i>	<i>with</i>	
1 – 18		1.7
19 – 36		1.8
37 – 54		1.9
55 – 72		1.95
73 or more		2.0

A student on academic probation normally should limit his or her academic load to four courses or 13 credits, whichever is less, in any semester in which the probation exists. The summer maximum should be two courses or seven credits.

Academic Dismissal

The College, upon recommendation of the Academic Standing Committee, may at any time dismiss from the College a student who is experiencing academic difficulty. A student should be aware that all cases are decided individually, and that poor academic performance may result in dismissal at the end of any semester.

A student who is in academic difficulty (below 2.0 cumulative grade point average) may be requested by the Academic Standing Committee, in consultation with the student, to enroll in a special or particular set of courses and to become involved in testing, counseling, or other developmental activities. A student's satisfactory performance in such assignments may be interpreted by the Academic Standing Committee as satisfactory progress and may make it unnecessary to recommend dismissal.

Readmission of Students Not in Good Academic Standing

A student who leaves the College while in academic difficulty (below 2.0 cumulative grade point average) must petition the Academic Standing Committee for readmission.

A student who is readmitted to the College after an absence of *five successive years* may, upon fulfilling certain requirements, have previous grades of *F* removed from the cumulative grade point average. For full information, the student should consult with the registrar.

Individual Program Adjustments

Academic departments reserve the right to counsel any student out of a major or minor for academically-related reasons. A student has the right to appeal such departmental action to the provost, who will direct warranted appeals to the Academic Standing Committee.

Academic Honors

Dean's List

A full-time student who earns a semester grade point average of 3.5 or better is regarded by the College as having performed with distinction. The student is placed on the Dean's List of Honor Students for the semester.

College Scholars

A College Scholar is a currently enrolled full-time student who, having completed at least 60 credits in consecutive semesters of full-time study at Elizabethtown College, has achieved a cumulative grade point average of 3.75 or higher. Scholars are identified at the end of the spring term, and are publicly recognized at the Convocation at the beginning of the

following academic year. They are awarded a certificate and their status as College Scholar is recorded on their permanent record.

Graduation with Honors

At the time of graduation, a student who has achieved a cumulative grade point average of 3.5 is graduated *cum laude*; of 3.75, *magna cum laude*; of 3.9, *summa cum laude*.

A transfer student is eligible for and receives these same honors if the student earns a minimum of 60 credits at Elizabethtown College and is recommended for honor by the major department.

Honors in the Discipline

Honors in the Discipline are awarded to outstanding graduates majoring in the various disciplines. To receive this designation, the student must prepare a research or creative project; the completed project must be judged outstanding by the faculty of the department. Invitation of the major department is required for a student to begin an honors project. In addition, a grade point average of at least 3.5 in the major is required.

Honors in the Discipline are noted in the graduation program and on the academic transcript. A student may receive recognition in more than one discipline. Departments may recognize more than one graduate in a year. Each department determines the specific criteria used to judge its students' projects.

Special Privileges

Scholar's Privilege

A full-time student who appeared on the Dean's List of Honor Students during the preceding semester may, with the permission of the instructor, attend any class in the College on a space available basis as a scholar's privilege without registration or credit.

Departmental Student Privilege

A full-time or part-time junior or senior student may, with the permission of the instructor, attend any class within the student's major or minor department on a space available basis without registration or credit.

Graduation

The Ceremony

Graduation from Elizabethtown College is celebrated once each year in May. Students who complete all graduation requirements in the previous summer or fall, or the current spring semester are recognized in this ceremony. Students may participate in only one graduation ceremony.

Students majoring in music therapy and occupational therapy who have completed all course work participate in the May graduation ceremony, but do not receive their diplomas until their respective clinical experiences

are completed. Clinical laboratory sciences majors whose hospital work is graded and recorded on the permanent record card participate in the May ceremony immediately preceding completion of their clinical year.

Senior students not actually graduating may petition to indicate their desire to be designated as a "member of the class." These nongraduating members of the class march in the processional and recession but are not called to the platform to receive recognition as a candidate for graduation. To be eligible for this status, students must have no more than six credits of coursework remaining (up to ten credits can be approved in special circumstances) and have a 2.0 grade point average in both major and overall at the time of the ceremony. Petitions are due to the director of records by February 15.

Honors are listed in the Commencement program for those students who have actually graduated or whose only remaining requirement is the non-credit clinical experience.

Credit Requirements

To receive a bachelor of arts or bachelor of science degree from Elizabethtown College, the student must earn a minimum of 125 credits. (Ma 011, En 011, and ESL 111 are not counted toward these credits.) In the case of engineering, clinical laboratory sciences, and other special programs, the number of credits required is indicated in the program outline (see departmental listings for specific information).

No more than one degree is ever awarded to an individual by Elizabethtown College; however, students may complete a second major, a minor, or teacher certification subsequent to graduation.

Program Requirements

Students are required to complete successfully all requirements of the major and all of the Core Program requirements. The College does not guarantee graduation to any student unable to complete requirements of a specific program or academic major.

In addition to their major, students have the option of pursuing a second major and/or one or more minors. Second majors must include at least 15 credits not included in the first major. For each minor, the student must complete at least eight credits that are not used to fulfill the requirements of the major(s) or another minor.

Second majors and minors represent additional knowledge and interest in areas outside the first major. Therefore, second majors and minors must be selected in disciplines outside the first major. Major and minor disciplines are determined by the predominant course prefix of the major/minor course requirements. For secondary education majors, the major subject area is considered to be the discipline of the major.

Grade Point Average

To be eligible for graduation, a student must have a

cumulative grade point average of at least 2.0, with a minimum average of 2.0 in a major (and a 2.0 in a minor if the minor is to be recorded on the student's transcript). A student transferring from other colleges must have an average of at least 2.0 in courses pursued in residence at Elizabethtown College.

On-Campus Credits

To meet graduation requirements, the student must earn on-campus credits as follows: (1) a minimum of 15 credits in the major, at least eight of which are at the upper level (normally 300 and 400 level), (2) at least 30 of the last 60 credits, and (3) the Junior/Senior Colloquium and at least one 200 level Core Program course.

To recognize completion of a minor on the transcript, a student must have completed at least nine credits of the requirements on the Elizabethtown College campus, and must have earned a baccalaureate degree at Elizabethtown College.

Note: Credits earned at the Dixon University Center in Harrisburg or in the Brethren Colleges Abroad program while the student is matriculated at Elizabethtown College, are considered on-campus credits.

Other Requirements

Graduation requirements are governed by the *Academic Program* dated four years prior to graduation, or, for major requirements, by the *Academic Program* in effect at the time of graduation, if the student so chooses. Transfer students are subject to the requirements of the *Academic Program* in effect when they begin studies at Elizabethtown College or, for major requirements, the one in effect at the time of graduation. In no case, however, may a student use a *Academic Program* dated more than four years prior to graduation to determine requirements for a degree, nor may a combination of *Academic Program* requirements be used.

Elizabethtown College will graduate only those students who meet the moral and financial obligations incurred in pursuit of their studies. The completion of the required number of credits does not in itself constitute eligibility for graduation.

It is the responsibility of the candidate for a degree to make formal written application for the degree to the registrar by February 15.

The Office of the President must be notified by any student who plans to graduate in absentia.

Academic Judicial System

Judicial Structure

Responsibility for judicial matters of an academic nature is assumed by the Academic Standing Committee and

the Academic Review Committee.

The **Academic Standing Committee** is comprised of three faculty members, the associate dean of the faculty, and two counselors from the Office of Personal and Career Counseling Services who serve in an advisory capacity without vote in committee decisions. The committee handles matters pertaining to academic probation, academic dismissal, readmission, and deviations from the academic curriculum of the College.

The **Academic Review Committee** is comprised of three faculty members, two students, and one administrator appointed by the president. The provost serves as convener of the committee but is not a member and does not vote in decisions made by the committee. The committee handles matters pertaining to academic dishonesty and student appeals of course grades.

Academic Due Process

At Elizabethtown College, academic due process is understood to include the following student rights:

With Regard to Grading:

1. To receive a specific explanation of the manner in which a course grade was determined.
2. To appeal a course grade if the student believes that a grade was influenced by matters other than academic performance, class attendance, and punctuality in submitting assignments.

With Regard to Academic Dishonesty:

1. When penalized for academic dishonesty, to receive a written notification specifying the nature of the infraction and the recommended penalty.
2. To request a hearing before the Academic Review Committee when found by a faculty member to be in violation of the standards of academic integrity and to receive a written statement from that board summarizing the findings of the board and its disposition of the matter.
3. To request a hearing before the Academic Standing Committee when recommended for academic dismissal due to cheating, plagiarism, or other violations of the standards of academic integrity.
4. To inspect any information on file in the Office of the Provost dealing with incidents of academic dishonesty attributed to that student.

Standards of Academic Integrity

Elizabethtown College assumes that students will act honorably. Students are asked to adhere to the Pledge of Integrity adopted by both the Student Senate and the Faculty Assembly.

ELIZABETHTOWN COLLEGE PLEDGE OF INTEGRITY

Elizabethtown College is a community engaged in a living and learning experience, the foundation of which is mutual

trust and respect.

Therefore, we will strive to behave toward one another with civility and with respect for the rights of others, and we promise to represent as our work only that which is indeed our own, refraining from all forms of lying, plagiarizing, and cheating.

All new students will enter with the expectation that they will affirm and uphold the Pledge. Reflecting commitment to the Pledge, new students will be expected to sign a pledge stating, "I pledge to be honest and to uphold integrity."

Academic Dishonesty — including cheating and plagiarism — constitutes a serious breach of academic integrity. Academic work is expected unequivocally to be the honest product of the student's own endeavor.

Cheating is defined as the giving or receiving of unauthorized information as part of an examination or other academic exercise. What constitutes "unauthorized information" may vary depending upon the type of examination or exercise involved, and the student must be careful to understand in advance what a particular instructor considers to be "unauthorized information." Faculty members are encouraged to make this definition clear to their students.

Plagiarism is defined as taking and using the writings or ideas of another without acknowledging the source. Plagiarism occurs most frequently in the preparation of a paper, but is found in other types of course assignments as well.

Other forms of academic dishonesty include (but are not limited to) fabrication, falsification, or invention of information when such information is not appropriate. To knowingly help or attempt to help another student to commit an act of academic dishonesty is considered to be an equivalent breach of academic integrity and is treated as such.

Cases of academic dishonesty are reviewed individually and according to the circumstances of the violation; however, students who violate the standards of academic integrity can normally expect a grade of *F* in the course and/or possible dismissal from the College.

Procedures for Dealing with Cases of Academic Dishonesty

Instances Involving Coursework:

1. When an instructor discovers evidence of academic dishonesty an informal conference is scheduled promptly with the student or students involved.
2. If, after the informal conference, the instructor is satisfied that there is evidence of academic dishonesty, a second conference is scheduled with the student involved (in cases involving more than one student either individual or group conferences may be appropriate depending on the particular circumstances of the case). It is preferable that this conference take

place in the presence of another faculty member. The student has the right to have a faculty member, another student, or a member of the Office of Personal and Career Counseling Services present as an observer.

3. If, following the second conference, the initiating faculty member is satisfied that there is proof of academic dishonesty and if the infraction is serious enough to warrant a recommendation of penalty beyond repetition of the assignment or examination, the faculty member will, with the approval of the department chair or equivalent, give the accused student(s) written notification specifying the infraction and the recommended penalty. A copy of this notification is sent to the Office of the Provost. Should the department chair not be in agreement with the faculty member, and the matter not be resolved at the department level, both the faculty member and the department chair will give written notification, with rationale, to the provost. The provost will then review the matter and recommend action, and will inform the student, in writing, of the recommended action.

4. The accused student(s) will have the alternative of accepting the recommended penalty or requesting a hearing before the Academic Review Committee. The request for a hearing must be presented in writing to the provost within five days of receipt of the notice of information.

5. The provost will review cases of academic dishonesty and exercise judgment as to whether a student found to be in violation of the standards of academic integrity should be recommended for dismissal from the College. If it is the provost's judgment that academic dismissal is appropriate, the provost will notify, in writing, both the student and the Academic Standing Committee of his decision and the factors that influenced that decision.

6. The student will have the option of accepting the provost's decision or requesting a hearing before the Academic Standing Committee. The request for a hearing must be presented in writing to the chair of the Academic Standing Committee within five days of receipt of the provost's decision.

Other Instances:

All forms of dishonesty in academic matters are violations of the Standards of Academic Integrity and are the concern of the Academic Review Committee. Inappropriate actions, for example, lying to college officials or forgery of advisors' signatures, are violations equivalent to cheating and plagiarism in coursework. Such dishonesty will be dealt with following the general procedures set forth above. Cases are reviewed individually and according to the circumstances of the violation; possible penalties include suspension or dismissal from the College.

Grade Appeals

Grades are considered to be official at the time submit-

ted by the faculty. Questions concerning grades must be called to the attention of the instructor immediately after the official grade report is received. Formal grade appeals must be submitted within 30 days of the date on which the grade was issued from the Office of Registration and Records. Exception to the 30-day time limit requires formal petition to and approval of the Academic Standing Committee.

Procedures For Grade Appeals

1. If a student believes that a final grade has been influenced by matters other than academic performance, class attendance, and punctuality in submitting assignments, the student may request an informal conference with the instructor to discuss the matter.

2. If the outcome of the informal conference is not satisfactory, the student may submit a request in writing for a meeting on the matter to the department chair (or another faculty member in the department in instances involving the chair). For the meeting, the student will prepare a written statement outlining the basis for the appeal.

3. The decision regarding the course grade in question will be made by the faculty member in consultation with the chair (or the other faculty member in the department in instances involving the chair). The student will receive immediate, written notification of that decision. Should the faculty member and the department chair not be in agreement, and the matter not be resolved at the department level, both the faculty member and the department chair will give written statements to the provost explaining the reasons for upholding or altering the grade. The provost will then review the matter and recommend action, and will inform the student, in writing, of the recommended action.

4. The student has the alternative, within ten days of the notice of the decision, of accepting the grade or submitting a further appeal, in writing, to the provost.

5. The provost will review the detail of the appeal. The Academic Review Committee will hear warranted appeals as determined by the provost.

Continuing Education

Elizabethtown College provides a variety of programs for the continuing education of adults. Bachelor's degrees in accounting and business administration can be earned through evening study. WELCOME BACK, a special program for adults who have been away from the academic setting, provides daytime study opportunities for returning adults.

Diploma programs are available for college graduates who want to develop professional competence in careers outside their original college majors. Certificate programs are available in accounting and management for men and women who seek entry-level positions in those fields. All Elizabethtown College courses in the certificate programs can be used for further study leading to a bachelor's degree at the College.

Elizabethtown College courses are also offered at the Dixon University Center, 2986 N. Second Street, Harrisburg, Pa.

In addition to these traditional learning options, the College offers an external degree program in which adults work with faculty advisors to develop individualized study plans leading to bachelor of professional studies or bachelor of liberal studies degrees. Credits earned through classroom education, special studies, and testing are combined with learning achieved through life and work experience to satisfy the degree requirements.

Detailed information on continuing education programs is available from the Center for Continuing Education, Nicarry Hall, Elizabethtown College.

Special Programs

Fall Convocation

At the beginning of each college year, an academic convocation is held at which a prominent speaker addresses an important issue in higher education. In September 1995, Richard Rodriguez, associate editor at The Pacific News Service and contributing editor to *The Los Angeles Times*, spoke.

Other speakers have been Seyyed Hassein Nasr, University Professor of Islamic Studies at The George Washington University (1994); Rabbi David Saperstein, director of the Religious Action Center for Reform Judaism, Washington, D.C. (1993); the Reverend R. Maurice Boyd, noted preacher and writer, and the senior minister of the New Church of New York (1992); Jacob Neusner, graduate research professor of religious studies, University of South Florida (1991); Carlos Fuentes, the noted Mexican writer, statesman and scholar (1990); Wallace T. MacCaffrey, Harvard University scholar and authority on British history of the 16th and 17th centuries (1989); and the Reverend William Sloane Coffin, president of SANE/FREEZE, Washington, D.C. (1988).

Lecture Series

Two lectures are sponsored at Elizabethtown College in which national and international leaders speak on political, ethical, social, and economic topics of major importance.

The Frank S. Carper Lecture on Ethics, Business and the Professions is an endowed lectureship named in honor of the late Frank S. Carper, an officer of the Valley Trust Company of Palmyra, Pennsylvania, a trustee of Elizabethtown College, and a free minister of the Church of the Brethren.

Carper Lecturers have been Arthur M. Schlesinger, Jr., the Pulitzer Prize winning historian and noted commentator (1992); the Reverend Andrew M. Greeley, writer, novelist, poet, journalist, and professor of sociology at the University of Arizona (1991); Michael Novak director of social and political studies, American Institute for Public Policy Research, Washington, D.C. (1989) and James O. Pickard, Secretary of Commerce in Pennsylvania from

1982-86 and chief executive officer of Globus Group, Inc., York, Pa. (1988).

The John F. Chubb Lecture on Business, Public Policy and World Affairs is an endowed lectureship named in honor of the late John F. Chubb, Class of 1961, who was a trustee of Elizabethtown College and a senior partner in the accounting firm of Chubb and Associates in Harrisburg and Middletown, Pennsylvania.

The 1996 Chubb Lecturers were Linda Chavez, president of the Center for Equal Opportunity and Juan Williams, political analyst and national correspondent for *The Washington Post*.

Previous lecturers were Dr. James Rippe, director of the Exercise Physiology and Nutrition Laboratory, University of Massachusetts Medical School (1994); Dr. David A. Ricks, vice president for academic affairs and professor of world business at "Thunderbird," the American Graduate School of International Management in Glendale, Ariz. (1993); Rozanne L. Ridgway, president of the Atlantic Council of the United States and former ambassador to the German Democratic Republic and to the Republic of Finland (1991); W. Michael Blumenthal, chairman and chief executive officer of UNISYS and the U.S. Secretary of the Treasury from 1977-79 (1989); and the late Honorable Willy Brandt, chancellor of the Federal Republic of Germany from 1969-74 and the recipient of the Nobel Prize for Peace in 1971 (1988).

College Assembly

The College Assembly is a dedicated period on many Wednesdays at 10:00 a.m. throughout the academic year. The assembly consists of a series of diverse programs designed to enhance cultural awareness and to provide a forum for discussion of issues of common concern to the college community.

Course Descriptions

The courses offered by the College are arranged alphabetically by departments or programs.

Some departments offer majors or concentrations in more than one academic discipline.

For convenience, these academic disciplines are listed alphabetically in the text; the reader is referred to the appropriate department.

Accounting

See *Department of Business*, page 24.

Anthropology

See *Department of Sociology and Anthropology*, page 69.

Department of Biology

Professors Dively, Heckman, Hoffman
Associate Professors Laughlin (*Chair*), Polanowski
Assistant Professors Cavender, Murray

Bachelor of Science

The courses of the Department of Biology provide a foundation in basic concepts and principles involving the structural, functional, and environmental aspects of the living world. The courses provide the student with a broad and unifying understanding of nature's life forms.

The department involves students in research studies with professors through senior seminars and independent study projects.

The Biology Department offers two majors:

Bachelor of Science in Biology. The curriculum prepares students for the rigors of graduate school, professional schools of medicine and allied health, and for biologically-oriented employment opportunities.

Bachelor of Science in Environmental Science. The curriculum prepares students for entry-level positions with environmental firms, industry or government agencies which require a knowledge of environmental principles and methodology as well as for entry into graduate environmental programs. In addition to providing the

student with a solid grounding in basic principles, they are exposed to the application of those principles in an intern program.

Biology

The Bachelor of Science: Biological Sciences Concentration prepares the student for a biologically-related profession or for graduate school. The specific requirements are Biology 111, 112, 211, 212, 324, 412, and one course from Bio 313, 317, or 318, one course from Bio 321, 331, or 332, and two courses selected from Bio 222, 235, 311, 312, 341, 343, 347, 362, 491, or 492. Other requirements are three courses in chemistry, two of which must be Chemistry 113, 114; Physics 101 or 103; and Math 121 or 151.

The Bachelor of Science: Medical Concentration prepares the student for entry into professional schools of medicine and related fields. Specific major requirements are the same as those for *biological sciences concentration*, but additional courses are recommended. Students interested in this program should consult with Dr. James Dively and see the description in the interdisciplinary section of this catalog.

The Bachelor of Science: Allied Health Concentration prepares the student for entry after three years into the professional allied health science programs of Thomas Jefferson University, Widener University, and other accredited pre-approved programs. Students interested in this program should see the description in the interdisciplinary section of this catalog and/or consult with Dr. Robert Heckman.

The Bachelor of Science: Secondary Education Concentration prepares the student for the receipt of Pennsylvania Secondary Education Certification within the framework of the biology major. This concentration provides a strong background in the biological sciences while simultaneously fulfilling the requirements for secondary teaching certification. The specific requirements are Bio 111, 112, 211, 212, 324, and one course from Bio 321, 331, or 332, one course from Bio 313, 317 or 318 and two courses from Bio 222, 235, 311, 312, 341, 343, 347, 362, 491, or 492. Other requirements are three courses in chemistry, two of which must be Chemistry 113, 114; Physics 101 or 103; Math 121 or 151; one course in Earth Science; Education 205, 230, 305, 415, and 473. Students interested in this concentration should consult with Dr. Frederic Hoffman.

Environmental Science

Three concentrations are available:

Environmental Toxicology Concentration is for the student interested in investigating the chemical and biological systems which influence the movement of contaminants through biological systems and their effects in the environment. In addition to the universal requirements (below), students are required to take Biology 324, 324L, 362 and one course from 222, 235, 321 or 347. Suggested

electives are Chemistry 214, 323 and 324; Political Science 366; Business Administration 330; and either Computer Science 115 or 120.

Environmental resource management concentration is for the student interested in application of ecological theory to the management of terrestrial and aquatic ecosystems. In addition to the universal requirements (below), students are required to take Biology 318, 347, and one course from Bio 331, ES 112, or ES 215-215L. Suggested electives are Computer Science 115 or 120; Political Science 366; Business Administration 330; and Economics 100 or 102.

Environmental policy concentration is for the student interested in examining and evaluating current and proposed environmental policies. In addition to the universal requirements (below), students are required to take Business Administration 330; Economics 100 or 102; and Political Science 111 and 361. Suggested electives are Computer Science 120; Political Science 112; and whichever economics course above was not taken as a requirement.

The universal requirements for the environmental science major are Biology 111, 112, 211, 212, 313, 313L, 317, 332, and 350. Other requirements are Chemistry 101, 113, and 114; Physics 101 or 103; Math 121 or 151; and Biology 472, 491 or 492 or Political Science 471 or another approved internship. Students interested in this major should consult with Dr. Thomas Murray.

A minor in biology provides course options from which a student can gain an overall view of the discipline of biology. The specific requirements are Biology 111 and 112 or 105-105L and 106-106L or 105-105L and 108-108L or 106-106L and 108-108L and three additional courses in biology. The total number of credit hours will be 18 or 20, depending on course selection. For a minor to be conferred, a minimum grade point average of 2.0 must be maintained in minor courses. To aid in course selection and career counseling, Dr. Frederic Hoffman of the Biology Department will work with the student and the student's major advisor.

Cooperative Programs

The Biology Department also offers two programs leading to the receipt of a degree from cooperating institutions.

The Preforestry Program offers a biology concentration in the five year cooperative program in forestry and environmental management with Duke University, leading to a bachelor of science degree from Elizabethtown College and a master of forestry or master of environmental management degree from Duke University. Students interested in this program should see the description in the interdisciplinary section of this catalog. Further information may be obtained from Prof. Ronald Laughlin.

Pre-allied Health Programs. In this program, the student

spends the first two years at Elizabethtown College and transfers to Thomas Jefferson University, or another degree granting institution with an accredited program, for the junior and senior years. Physical Therapy requires two years at Elizabeth-town College and three years at Thomas Jefferson University. The student should contact Dr. Robert Heckman very early to design a specific program which meets the requirements of a degree granting institution. The professional programs include areas of cyto-technology, cytogenetic technology, diagnostic imaging, diagnostic medical sonography /ultrasound, medical technology, nursing, occupational therapy, and physical therapy. Students should contact Dr. Heckman for specific pre-allied health courses for each of the above programs. These programs differ from the biology major/allied health programs in that no degree is awarded from Elizabethtown College. Thomas Jefferson University awards the bachelor of science degree for each of the above programs. Students who may be interested in receiving an Elizabethtown College degree must complete the biology major and the Elizabethtown College core requirements.

Bachelor of Science in general science secondary education is offered through the Biology Department. The curriculum prepares the student to receive secondary school general science certification. Students interested in this area should consult the detailed description in the interdisciplinary section of this catalog. Further details may be obtained from Dr. Frederic Hoffman.

The Department of Biology participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

105* Principles of Biology

3 credits. (Natural World) Designed for the nonbiology major. An overview of basic biological principles and concepts, emphasizing their relevancy to our daily lives. Discussion of current issues and problems provides an understanding and respect for the basic mechanisms of life. *May not be taken for credit after completing Biology 111.* Prof. Polanowski.

105L* Principles of Biology Laboratory

1 credit. (Natural World) Designed to accompany Biology 105, these laboratory exercises demonstrate many of the important biological principles covered in the lecture course. *Prerequisite or corequisite: Biology 105*.* Prof. Polanowski.

106* Genetics, Evolution, and Man

3 credits. (Natural World) Designed for the non-biology major. A discussion of the fundamentals of genetics as they relate to man, followed by a study of the mechanics of evolution, their significance, and the evolution of man. Staff.

106L* Genetics, Evolution, and Man Laboratory

1 credit. (Natural World) A series of laboratory exercises intended to illustrate some of the principles of genetics and mechanisms of evolution. *Prerequisite or corequisite: Biology 106*.* Staff.

108* Living With The Environment

3 credits. (Natural World) Designed for the non-biology major, a discussion of the basic principles of environmental relationships and how living organisms play a role in those relationships and respond to changes in their environment. Current problems with pollution, hazardous wastes, energy, and population growth are examined in

relation to those environmental principles. Prof. Laughlin.

108L* Living With The Environment Laboratory

1 credit. (Natural World) Includes field trips to a nuclear power plant and water and sewage treatment plants, testing for various contaminants in the environment, and exercises in measurement of energy consumption and environmental tolerance. *Prerequisite or corequisite: Biology 108**. Prof. Laughlin.

111* Introduction to Biological Sciences

4 credits. (Natural World) The study of the chemical and cellular basis of life, human and animal anatomy and physiology, cellular reproduction, heredity, and animal development. For biology majors and those students taking additional biology courses. Hours: lecture 3, laboratory 3. Fall semester. *Cannot be taken for credit without the permission of instructor after completing Biology 105.* Staff.

112 General Biology: Development and Evolution

3 credits. The study of the principles of development and evolution of organisms. Selected phyla are used to illustrate the processes of development. The mechanisms underlying the processes of evolution are discussed. For biology majors or those taking additional biology courses. Hours: lecture 3. *Prerequisite: Biology 111.* Spring semester. Prof. Hoffman.

201 Human Anatomy and Physiology I

4 credits. The study of structure and function of the human integumentary, skeletal, muscular, nervous, and endocrine systems. Particular attention is given to structure and function as it relates to dysfunction and disease. Laboratory work involves dissection of a human cadaver. Enrollment limited to occupational therapy, music therapy, and allied health majors. Hours: lecture 3, laboratory 3. *Prerequisites: Biology 111, permission of instructor.* Fall semester. Prof. Dively.

202 Human Anatomy and Physiology II

4 credits. A continuation of Biology 201. The study of structure and function of the human circulatory, respiratory, excretory, digestive, and reproductive systems. Emphasis on these systems as they relate to homeostasis and disease. Laboratory work involves cat dissection and "hands-on" manipulation of instruments useful to the health profession student. Enrollment limited to occupational therapy, music therapy, and allied health majors. Hours: lecture 3, laboratory 3. *Prerequisite: Biology 201.* Spring semester. Prof. Dively.

211 Genetics and Molecular Biology

4 credits. An integrated and comprehensive review of classical, neo-Mendelian principles of heredity and molecular biology. Laboratory work involves *Drosophila* crosses and basic techniques employed for molecular investigations. Hours: lecture 3, laboratory 3. *Prerequisites: Biology 111 and 112 or permission of instructor.* Fall semester. Prof. Heckman.

212 Molecular and Cellular Biology

4 credits. An integrated approach to the study of the cell from a molecular perspective. Morphological and physiological study of cells, cell mechanisms, and cell organelles are explained through understanding of the interaction of biological molecules. Laboratory work involves qualitative and quantitative investigations of cellular and molecular construction of enzymatic pathways through various extraction and analysis techniques. Hours: lecture 3, laboratory 3. *Prerequisite: Biology 211.* Spring semester. Prof. Cavender.

222 Immunology

3 credits. A basic course encompassing immunity, serology, immunchemistry and immunobiology. Considered are antigenic specificity, humoral and cellular effector mechanisms, hypersensitivities, immunogenetics, tolerance and enhancement, tissue and tumor immunity, as well as recent methodological advances. *Prerequisite: Biology 112 or permission of instructor.* Spring, alternate years. Prof. Polanowski.

235 General Microbiology

4 credits. A study of the morphological, physiological, and ecological

characteristics of bacteria, as well as disease transmission and principles of control. A laboratory gives practice in the isolation and identification of bacteria. Hours: lecture 2, laboratory 5. *Prerequisites: Biology 112 and Chemistry 105 or 114, or permission of instructor.* Spring semester. Prof. Cavender.

311 Biological Instrumentation and Research Methodology

4 credits. A practical and theoretical study of techniques, such as colorimetry, electrophoresis, ultracentrifugation, gas chromatography, tracer studies, electron microscopy, and flame photometry. Students prepare experimental plans illustrating the use of each instrument and perform a short-term experiment. Instrumentation emphasized. The research skills of planning, data collection, data analysis, and evaluation are stressed. *Prerequisites: 15 credit hours of biology, 8 credit hours of chemistry.* Fall semester. Prof. Cavender.

312 Molecular Methods of Research

4 credits. An in-depth, hands-on experience with the most modern techniques of molecular biology. Students will master the techniques of gel electrophoresis, mammalian and bacterial cell culture, genetic engineering, and gene expression. Students will design an individual research project, collect and interpret data, assemble results into a formal written report, and orally present the project to the class. Emphasis on development of skills which lead to critical interpretation of data and logical progression of scientific reasoning. Hours: lecture 2, laboratory 4. *Prerequisites: 15 credit hours of biology which include Bio 211 and 212 or permission of instructor. 8 credit hours of chemistry.* Spring semester. Prof. Cavender.

313 General Ecology

3 credits. The relationships between plants, animals, and their environment are investigated with regard to energy flow, mineral cycling, physical and chemical parameters, population changes, and community structure. *Prerequisite: 16 hours of biology or permission of instructor.* Fall semester. Prof. Laughlin.

313L General Ecology Laboratory

1 credit. Use of techniques and instrumentation for aquatic and terrestrial field studies, experimentation in such areas as population growth, competition, productivity, and mineral cycling. *Prerequisite or corequisite: Biology 313.* Fall semester. Prof. Laughlin.

317 Aquatic Ecology

4 credits. The study of physical, chemical, and biological relationships in aquatic ecosystems as they relate to the survival and growth of organisms. The course will include laboratory and field experimentation using local aquatic ecosystems. *Prerequisites: 15 credit hours of biology, 8 credit hours of chemistry.* Fall semester. Prof. Murray.

318 Marine Biology

3 credits. A study of the chemical and physical characteristics of marine ecosystems and the functional adaptations of marine organisms to those systems. Representative marine communities including rocky intertidal and coral reefs are examined in detail. The impacts of humans on marine environments are also discussed. *Prerequisites: 8 hours of Biology, 4 hours of Chemistry.* Spring semester. Prof. Murray.

321 Plant Physiology

4 credits. A study of plant growth and development, including a discussion of photosynthesis, mineral nutrition, carbon and nitrogen metabolism, water relations, and plant hormones. Hours: lecture 3, laboratory 4. *Prerequisites: Biology 112, and Chemistry 105 or 114; or permission of instructor.* Spring semester, alternate years. Prof. Laughlin.

324 General Physiology

3 credits. A functional study of vertebrate organs and organ systems. Attention focused on similarities and specialization in relation to function, with emphasis on functional adaptations to the environment. *Prerequisite: Biology 112 or permission of instructor.* Spring semester. Prof. Dively.

324L General Physiology Laboratory

1 credit. An investigation of selected physiological mechanisms, employing spectrophotometers, datagraphs, spirometers, oscillo-

scopes, electrocardiographs, electrophoresis and animal surgical techniques. *Prerequisite or corequisite: Biology 324.* Spring semester. Prof. Dively.

331 Comparative Plant Morphology

4 credits. A comparative study of the plant kingdom with emphasis upon the various levels of organization, structure and the development and relationships of the major plant groups. Hours: lecture 3, laboratory 4. *Prerequisite: Biology 112.* Fall semester. Prof. Polanowski.

332 Taxonomy of Vascular Plants

4 credits. Examination of family characteristics useful in plant identification, using live material and transparencies. Taxonomic principles and distribution of plants discussed. Plant collection and some Saturday trips required. Hours: lecture 3, laboratory 4. *Prerequisite: Biology 112.* Spring, alternate years. Prof. Laughlin.

341 Comparative Anatomy

4 credits. A comparative and embryological study of morphology of selected representatives from the phylum chordata. Laboratory work involves dissection and demonstration of organisms from major chordate groups. Hours: lecture 2, laboratory 4. *Prerequisite: Biology 112.* Fall semester. Prof. Dively.

342 Development and Evolution

3 credits. A basic study of animal development in selected representatives from phyla echinodermata and chordata. Also, the mechanisms underlying evolutionary processes and the emergence of humankind are studied. *Prerequisite: Biology 211.* Spring semester. Prof. Hoffman.

343 Histology and Biomedical Technique

4 credits. A basic microscopic study of vertebrate tissues. The laboratory includes biomedical techniques of paraffin sectioning, staining, and slide preparation. Hours: lecture 2, laboratory 4. *Prerequisite: Biology 112.* Spring semester. Prof. Heckman.

347 Invertebrate Zoology

4 credits. A study of the evolution of invertebrate animals from simple to complex forms, structural and functional similarities and differences, and the evolutionary trends necessary for an understanding of basic adaptive features. Hours: lecture 2, laboratory 4. *Prerequisite: Biology 112 or permission of the instructor.* Fall semester. Prof. Hoffman.

350 Environmental Issues Seminar

1 credit. A multidisciplinary approach to current issues in environmental science. Topics of discussion will include water and air quality, domestic and hazardous waste disposal, global environmental issues, environmental economics and sustainable resource use. Students will be required to write a position paper on an issue of their choice. *Prerequisite: at least junior standing.* Spring semester. Prof. Murray.

362 Ecotoxicology

4 credits. The study of the fate and transport of toxic compounds in the environment. The toxicity of individual pollutants at the organismal, species, population, and community levels is discussed. Risk assessment and risk management in ecological systems are also discussed. The course will include laboratory experimentation. *Prerequisites: 15 credit hours of biology and 8 credit hours of chemistry.* Spring semester. Prof. Murray.

370-379 Special Topics in Biology

Variable credit. Courses of a specialized nature reflecting the interests of the student and the instructor. Courses offered on a random basis. Staff.

412 Seminar in Biology

1 credit. Students will read and discuss articles in the biological literature dealing with major advances in biology. A paper and oral presentation on a subject related to the discussion is required. Required of biology majors. Hours: Seminar 1. *Prerequisite: senior standing.* Graded Pass/No Pass. Spring semester. Staff.

472 Internship in Environmental Science

3 credits. Work experience in an environmental science-related field

including environmental consulting and engineering firms, analytical laboratories, and state agencies. *Prerequisites: At least junior standing, permission of instructor.* Graded Pass/No Pass. Prof. Murray.

491-492 Research in Biology

3-4 credits. An original research investigation planned and performed by students in consultation with faculty. A paper is written and major findings are presented orally to faculty and peers. Students must obtain permission of the professor whom they wish to serve as their research mentor before enrolling in the course. Only one course may be used as a Biology elective. Required for honors in biology. Hours: Variable. *Prerequisite: junior standing or permission of instructor.* Graded Pass/No Pass. Fall and spring semesters. Staff.

Education 305 Practicum in Secondary Education: Science

4 credits. Teaching science in secondary schools. *Prerequisite: Education 230.* Fall, alternate years. Prof. Hoffman.

Department of Business

Professors Buffenmyer, C. Kreider

Associate Professors Evans, Gliptis, Hoppie, Neyer,
Pomroy, Stone, Trostle (*Chair*)

Assistant Professors Gifford, Hill, Massad, Muston
Lodge Distinguished Professor of Business Hodge

Bachelor of Arts; Bachelor of Science

Elizabethtown College, through its Department of Business, is nationally accredited by the Association of Collegiate Business Schools and Programs (ACBSP) for the following programs: (1) bachelor of science degree in accounting, and (2) bachelor of science degree in business administration.

The Department of Business provides comprehensive programs of professional education for students who wish to achieve responsible positions in private and public business organizations. The department's goal is to provide students with an understanding of economic and business systems within the global economy and a multi-cultural society, and to provide them with a foundation for pursuing a career, graduate study, and continuing self-education in a business area.

The Department of Business offers four majors:

Bachelor of Science in Accounting. Preparation for entrance into the profession of accounting (public, private, or governmental) requires a basic business core in addition to a proficiency in accounting. Because of the increased emphasis upon computer and quantitative techniques by business, students are urged to elect additional courses in these areas.

Bachelor of Science in Business Administration. Preparation to become a business leader requires a broad background in business, a knowledge of the behavioral and social sciences, and the ability to use quantitative techniques in solving problems. The business core, the

Core Program, and specific mathematics requirements provide this background. A student will gain further understanding of specific areas of business by concentrating in one or more of six areas: *accounting, computer science/business information systems, economics, finance, management, or marketing*. A student may also select a secondary area of concentration in *communications* or *international business*.

Business administration students may also major in forestry and environmental management. Students interested in this major should read the detailed description in the interdisciplinary section of this catalog.

A bachelor of science degree in accounting or business administration may be earned in the evening program of the College. This degree is not accredited by the Association of Collegiate Business Schools and Programs but is accredited by the Middle States Association of Colleges and Secondary Schools.

Bachelor of Science in International Business. Preparation for a career in international business requires an understanding of foreign cultures, language and cross-cultural interaction skills, a broad background in business, and skills in a functional area of business. A student must choose one of the following concentrations: *finance, management, or marketing*.

Bachelor of Arts in Economics. Preparation for a career in economics requires a broad background in basic economic theory and an in-depth study of the quantitative tools important to the economist. In light of the emphasis on the quantitative approach to economic theory, students are advised to select courses in mathematics and computer science beyond those specifically required in the economics curriculum.

Economics is one of the major areas in the social studies major through which a student may receive certification to teach in secondary schools. Students with interests in this area should read the detailed descriptions in the interdisciplinary section of this catalog.

A minor in economics and a minor in business administration are offered. For a minor in economics, a student must complete the following 18 hours of course work: Ec 100, Ec 102, Ec 301, Ec 302, and two additional economics courses (excluding Ec 203). In consultation with the department advisor, the elective courses should be tailored to the student's area of interest.

For a minor in business administration, a student must complete the following 24 credits of course work: Ac 107, Ec 100, BA 265, BA 330, and four other courses offered in the Department of Business (excluding BA 251 and Ec 203). The elective courses should be selected after consultation with the department advisor.

For either minor to be conferred, a minimum grade point average of 2.0 must be maintained in minor courses.

Students interested in business and technology are advised to read the description of the industrial engineering major offered by the Department of Physics.

Accounting

A major in accounting includes Accounting 107, 108, 205, 206, 207, 301, 305, 9 additional credits in accounting; Business Administration 215, 248, 265, 325, 331, 332, 355, 495; Computer Science 120/MS-DOS; Economics 100, 102; Mathematics 151. No more than 75 credits may be taken in courses offered by the Department of Business.

Business Administration

A major in business administration includes Accounting 107, 108; Business Administration 215, 248, 265, 325, 330, 355, 495; Computer Science 120/MS-DOS; Economics 100, 102; Mathematics 117 or 121, and 151. A student must also choose one of the concentrations described below; 12 credits beyond those listed above must be taken in the concentration area (Nine of those 12 credits must be taken on the Elizabethtown College campus.). A student may also elect a secondary concentration. No more than 75 credits may be taken in courses offered by the Department of Business.

For an *accounting concentration*, a student must take Accounting 205, 206, and two other accounting courses listed on the departmental advising sheet. A *computer science/business information systems concentration* requires Computer Science 121, 135, 335, 340. An *economics concentration* requires Economics 301, 302, and two other economics courses listed on the departmental advising sheet, excluding Economics 203. A *finance concentration* requires Business Administration 424, 425, and two of the following: Business Administration 327, Economics 303 or 304. The *management concentration* requires Business Administration 369, 499, and two other management courses listed on the departmental advising sheet. A *marketing concentration* requires Business Administration 319, 416, and two other marketing courses listed on the departmental advising sheet.

A *secondary concentration in international business* requires competency in a modern language at the 112 level; Anthropology 111 or Business Administration 251; Political Science 245; Economics 307 or 311 or 312; and two other courses listed on the departmental advising sheet. A *secondary concentration in communications* requires Communications 105, English 185, and three other courses listed on the departmental advising sheet.

International Business

An international business major must complete the requirements for the four components of the program: modern languages, foreign culture and international interaction, business studies, and experiential learning.

Requirements for the modern language component include 211, 212 of a modern language and a minimum rating of Intermediate High/1+ on the ACTFL scale.

Requirements for the foreign culture and international interaction component include Political Science 245, 341; Economics 100, 307; Business Administration 251, 337; and two other foreign culture and international

interaction courses listed on the departmental advising sheet.

Requirements for the business studies component include Accounting 107, 108; Computer Science 120; Economics 102; Mathematics 151; Business Administration 215, 265, 325, 497; and nine credits in one of the concentrations listed below.

For a *Finance Concentration*, a student must take Business Administration 327, 425, and one other finance course from the departmental advising sheet. A *Management Concentration* requires Business Administration 369, 367, and one other management course from the departmental advising sheet. A *Marketing Concentration* requires Business Administration 317, 319, and one other marketing course from the departmental advising sheet.

In order to meet the requirements of the Experiential Learning component, a student must study abroad for at least one semester with our Brethren Colleges Abroad program or with another program approved by the Department of Business and the Office of Registration and Records.

Admission to the international business major is limited to 25 freshmen each year in order to maintain the quality of the program and to provide the necessary assistance for each student. Transfers are permitted from within the College or from other institutions on a space-available basis.

Freshmen International Business majors are selected by Department of Business faculty. The selection process includes consideration of (a) motivation and aptitude, (b) preparation for international business study, (c) leadership and communications, and (d) interest in international business.

A prospective student must submit an application with all supporting documentation (including an essay demonstrating interest in international business) to the director of admissions before March 15. Applications received after March 15 will only be considered on a space available basis and will not be eligible for Department of Business scholarships.

Admission into the International Business Program does not imply that a student is guaranteed completion of the entire course of study. Generally, a student needs a 3.0 grade point average to qualify for a study abroad program which is a requirement for graduation in this major. For further information, contact Dr. Jay Buffenmyer, program director.

Economics

A major in economics includes Economics 100, 102, 301, 302, 309, and 15 additional credits in economics: Computer Science 120, Mathematics 121, 151, and 252; nine credits of history; and nine credits of political science and/or sociology. In addition, at least one semester of a modern foreign language at the 112 level or higher is required.

The Department of Business participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should

consult the department chair.

Accounting

107 Financial Accounting

3 credits. Basic accounting methodology and the structure and interpretation of financial statements used in external reporting. Profs. Gifford, Neyer, Pomroy.

108 Managerial Accounting

3 credits. The use of information gathered from accounting records and other information sources to prepare internal reports and analyses in order to assist management in control and decision-making. *Prerequisite:* Accounting 107. Profs. Gifford, Neyer, Pomroy.

205 Intermediate Accounting I

3 credits. A thorough study of various accounting concepts and generally accepted accounting principles; the application of these principles to the various assets and related revenue and expense accounts as presented in the income statement and balance sheet. Emphasis on valuation, classification, disclosure, and cut-off. *Prerequisite:* Accounting 107 or permission of the instructor. Fall semester. Prof. Neyer.

206 Intermediate Accounting II

3 credits. A continuation of 205. The principles of valuation, classification, disclosure, and cut-off applied to the various liability and owners' equity accounts as well as their related revenues and expenses. Topics include the study of various items affecting income determination, the statement of changes in financial position, and ratio analysis. *Prerequisite:* Accounting 205. Spring semester. Prof. Neyer.

207 Intermediate Accounting III

3 credits. A continuation of the study of theories and concepts used in the preparation of general purpose financial statements on a special topics basis. This course will concentrate on earnings per share, accounting for income taxes, leases, income presentation, and other topics of a specialized nature. *Prerequisite:* Accounting 206. Fall semester. Prof. Gifford.

301 Introduction to Federal Income Taxes

3 credits. Provisions of the Internal Revenue Code which apply to individual taxpayers and sole proprietors. Students without a business background are encouraged to enroll. Fall semester. Prof. Pomroy.

302 Advanced Tax Accounting

3 credits. Further study of the Internal Revenue Code as it relates to partnerships, corporations, trusts and estates, and tax exempt organizations. State taxation of business is also covered. *Prerequisites:* Accounting 301, 206 or permission of the instructor. Spring semester. Prof. Pomroy.

305 Cost Accounting

3 credits. The quantitative aspects of managerial cost accounting, including cost-volume-profit analysis, budgeting, standard costs, and the concept of relevant costs. *Prerequisite:* Accounting 108 or permission of the instructor. Fall semester. Prof. Neyer.

306 Advanced Cost Accounting

3 credits. A continuation of the managerial emphasis on cost accounting, including capital budgeting, inventory control, joint-and-by-product costing, and process cost accounting. *Prerequisite:* Accounting 305. Spring semester. Prof. Neyer.

308 Accounting for Nonprofit Organizations

3 credits. The principles and uses of fund accounting; topics include the budgeting process, reporting requirements for general and special financial statements, and management's uses for control and decision-making as they relate to the general operating fund, as well as restricted and nonrestricted special funds. *Prerequisite:* Accounting 108. Spring semester. Prof. Neyer.

371-379 Special Problems

3 credits. Topics and problems of current relevance in accounting. Prof. Gifford.

405 Auditing

3 credits. The legal and ethical responsibilities of an auditor, the methods and procedures used in gathering evidential material, and the auditor's report. *Prerequisite:* Accounting 207 or permission of the instructor. Fall semester. Prof. Gifford.

406 Advanced Accounting

3 credits. Accounting theory, income statement presentation, consolidations, partnerships, and foreign exchange accounting. *Prerequisite:* Accounting 206. Spring semester. Profs. Gifford, Pomroy.

409 Contemporary Problems for C.P.A.'s

3 credits. Aspects of public accounting, including the latest standards and problems. *Prerequisites:* Accounting 302, 405, 406; or permission of the instructor. Spring semester. Prof. Pomroy.

471 Internship in Accounting

Variable credit. Work experience in accounting with either a public accounting firm, a business firm, or governmental agency. *Prerequisite:* approval of the department chair. Prof. Pomroy.

474 VITA Internship in Tax Accounting

1 credit. Prepare federal, state, and local income tax returns for low-income and elderly taxpayers under the Volunteer Income Tax Assistance (VITA) Program of the Internal Revenue Service. *Prerequisites:* Accounting 301 and permission of instructor. Graded Pass/No Pass. Spring semester. Prof. Pomroy.

480-489 Independent Study

Variable credit. Independent study and research on a problem or topic in the field of accounting. *Prerequisites:* approval of the department chair and Independent Study Committee. Prof. Gifford.

Business Administration

215 Principles of Marketing

3 credits. A study of the development and implementation of marketing strategies and practices with particular emphasis on the role of marketing in business and society. Profs. P. Hill, Massad.

248 Quantitative Techniques for Business

3 credits. Statistics, mathematical, and computer-based methods

applied to business; including linear programming, decision theory, forecasting, network analysis, decision support, and expert systems. *Prerequisite:* Mathematics 151. Prof. Stone.

251* Cross Cultural Understanding and Interaction

3 credits. (Foreign Cultures and International Studies) An interdisciplinary study of the political, social, and economic environment of foreign cultures. Focuses on understanding the differences between foreign cultures and our own culture and on developing the interaction necessary to function effectively in the global community. Prof. Buffenmyer.

265 Principles of Management

3 credits. The process of using and coordinating technical and human resources in planning, organizing, staffing, motivating, and controlling to achieve an organization's objectives. Prof. Muston.

311 Principles of Marketing Research

3 credits. Employs scientific research methodology to solve marketing problems. Covers research design, data collection, sampling, and analysis. Stresses writing meaningful reports for managerial use. *Prerequisites:* Business Administration 215, Mathematics 151. Spring semester. Staff.

312 Principles of Advertising

3 credits. Involves the creative and business management aspects of advertising, including campaign strategy, mass media, the advertising agency, creative techniques, advertising research, and social accountability. *Prerequisites:* Business Administration 215 and 319. Fall semester. Prof. Massad.

313 Retailing Management

3 credits. A study of retailing institutions, including institutional location, layout, managerial objectives and policies, consumer behavior, pricing and promotional strategies, consumer services, and expected trends. *Prerequisites:* Business Administration 215, 265. Fall semester. Prof. Hill.

317 International Marketing

3 credits. Focus on marketing management problems, techniques and strategies in the framework of the international marketing area, and understanding different cultures and environments in order to establish effective marketing programs. *Prerequisite:* Business Administration 215. Spring semester. Prof. Massad.

319 Consumer Behavior

3 credits. The various internal and external influences on the consumer before, during, and after, a purchase. Emphasis is on understanding and predicting the individual's consumption patterns so that effective marketing strategies can be developed. *Prerequisite:* Psychology 105. Fall semester. Prof. Hill.

325 Business Finance

3 credits. Analyzes the management of funds of a business, including long- and short-term sources of funds, ratio analysis, capital budgeting, the cost of capital, and the dividend decision. *Prerequisite:* Accounting 108. Prof. Trostle.

327 International Finance

3 credits. The international finance environment in which economic policy and business decisions are made. An introduction to international finance, including the spot and forward exchange markets, the Eurocurrency market, international capital markets, international capital movement, and foreign exchange risk management. *Prerequisite:* Business Administration 325. Prof. Hodge

330 Legal Environment of Business

3 credits. The study of legal environment as it pertains to the business community and our national history and philosophy. Prof. Gliptis.

331 Business Law I

3 credits. Legal principles applicable to business, with emphasis on contract law. Includes the growth of law as an institution. Fall semester. Prof. Gliptis.

332 Business Law II

3 credits. The study of legal principles applicable to business with emphasis on partnership, corporation, and property law. *Prerequisite:* Business Administration 331 or permission of the instructor. Spring semester. Prof. Gliptis.

333 Legal Problems in Business

3 credits. An examination of statutes, problems, and issues in selected areas of the law appropriate to business. *Prerequisite:* permission of the instructor. Spring semester. Prof. Gliptis.

337 International Legal Environment

3 credits. An introduction to important laws, issues, and policies pertinent to the international environment of business. Examination of legal principles and regulations at the national and international level. Prof. Gliptis.

355 Managerial Communication

3 credits. A study of the various communications techniques, incorporating the use of technology. Emphasis is on international communication, the analysis, ethics, and organization of materials for effective oral and written presentations. Prof. C. Kreider.

367 International Management

3 credits. The process of utilizing and coordinating human and technical resources in business which cross over national boundaries. The impact of cultural, economical and political forces on managerial practices in international organizations. *Prerequisite:* Business Administration 265. Fall semester. Prof. Buffenmyer.

369 Behavioral Theory in Management

3 credits. The interaction of the individual, group, and enterprise in the work environment, with special attention to the basic motivational, organizational, and leadership theories and their application. *Prerequisites:* Psychology 105, Business Administration 265. Fall semester. Prof. Muston.

371-379 Special Topics

3 credits. Topics and problems of current relevance in business.

414 Organizational Marketing

3 credits. An examination of the marketing of goods and services between businesses, institutions, and government with special emphasis on organizational buying, behavior, relationship management and promotional tools necessary to reach organizational customers. *Prerequisite:* Business Administration 215. Prof. Hill.

416 Marketing Management

3 credits. Integrating marketing theories and concepts for strategic planning and implementation. Case method emphasized. *Prerequisites:* Business Administration 215, 319, and two other courses required for marketing concentration. Spring semester. Profs. Hill, Massad.

424 Investments

3 credits. Emphasis on various classes of investments available to the investor; sources and uses of investment information; and security and market evaluation. *Prerequisite:* Business Administration 325. Fall semester. Prof. Trostle.

425 Problems in Financial Management

3 credits. An advanced course in corporation finance in which major topic areas such as capital budgeting, working capital management, leasing, mergers, and financing are examined in depth. Cases, readings, and more complex problems are used to illustrate the concepts covered. *Prerequisite:* Business Administration 325. Spring semester. Prof. Trostle.

466 Operations Management

3 credits. A critical study of the decision-making techniques used in operations management, emphasizing the practical application of scientific methods and management principles to production activities. Topics include: resource allocation, production cycles, job design, facility layout, production planning, quality improvements, and process control. Spring semester. Prof. Stone.

467 Human Resource Management

3 credits. Analysis of the principles, concepts and practices of procurement, development, maintenance, and utilization of personnel in organizations. *Prerequisite:* Business Administration 265. Spring semester. Prof. Buffenmyer.

468 Industrial and Labor Relations

3 credits. Analysis of employment relationships; union philosophy, structure and function; collective bargaining, and the interrelated interests of management, union, workers, and the community. *Prerequisite:* Business Administration 369 or permission of the instructor. Fall semester. Prof. Muston.

471 Internship in Business

Variable credit. Work experiences designed to supplement course work. *Prerequisite:* approval of department chair. Prof. Buffenmyer.

480-489 Independent Study

Variable credit. Independent study and research on a problem or topic in the field of business. *Prerequisites:* approval of the department chair and the Independent Study Committee.

495 Business Policy

3 credits. A capstone course for the business major integrating concepts, principles, and practices from prior courses. Provides a comprehensive study of the interrelationships between management theory, problem analysis, and strategy formation for the contemporary enterprise. *Prerequisite:* senior status. Profs. Muston, Stone.

497 International Strategic Management Seminar

3 credits. A capstone course for the international business major, integrating concepts, principles, and practices from prior courses. Students required to participate in group decision making and presentations, and in a global computer simulation. They must prepare a major written comprehensive case analysis. *Prerequisite:* senior status in international business major or permission of instructor. (Students who have successfully completed Business Administration 495 may not take this course for credit.) Spring semester. Prof. Stone.

498 Seminar in Marketing

3 credits. Synthesizes the literature in consumer behavior, quantitative methods in marketing, and policy issues. *Prerequisites:* Business Administration 215. Spring semester. Profs. Hill, Massad.

499 Seminar in Management

3 credits. Advanced study focusing on current management concepts and contemporary problems in the business enterprise. Various topics are selected in the area of the students' interests. *Prerequisites:* Business Administration 248, 265, 369, and two other courses required for the management concentration, or permission of the instructor. Spring semester. Profs. Buffenmyer, Muston, Stone.

Economics

100 *Global Economics: Principles and Issues

3 credits. (Social World) Global economics is a principles of macroeconomics course designed to introduce students to the essential concepts of basic economics but with a strong emphasis on the global environment. Traditional topics of economic analysis, economic policy, and evaluation will be covered. In addition, each particular issue will be supplemented with an international trade or global economic example in order to help students appreciate the international dimension of the subject of economics. Profs. Evans, Hoppie, Stone.

102 Principles of Microeconomics

3 credits. Topics include elasticity, consumer behavior, production costs, market structures (competition, oligopoly, monopoly), and resource pricing. Profs. Evans, Hoppie.

203* The Greatest Economic Mystery Series

3 credits. (Social World) Through a series of four mystery novels, the authors weave important lessons of economics into an entertaining story of intrigue and deception. This combination of ingenious story line and important issues of macroeconomics and public affairs should provide a truly different experience for all students. Prof. Evans.

301 Intermediate Microeconomic Theory

3 credits. An in-depth study of corporate decision-making and resource allocation within the economic environment of free enterprise. *Prerequisites:* Economics 100, 102; Mathematics 117 or 121. Fall semester, even-numbered years. Prof. Evans.

302 Intermediate Macroeconomic Theory

3 credits. Development of macroeconomic theories of output, employment, inflation and growth, monetary and fiscal policies, and analysis. *Prerequisites:* Economics 100, 102; Mathematics 117 or 121. Spring semester, odd-numbered years. Prof. Hoppie.

303 Money and Banking

3 credits. A study of the United States money and banking systems, including commercial banking, the Federal Reserve System, monetary theory and policy, interest rates, money markets. *Prerequisite:* Economics 100 or permission of the instructor. Spring semester. Prof. Evans.

304 Public Finance

3 credits. An application of microeconomic theory to the problems of federal, state, and local taxation, expenditures and debt management. *Prerequisite:* Economics 102. Spring semester. Prof. Trostle.

306 Development of Economic Thought

3 credits. The historical and philosophical evolution of economic ideas and schools of thought from Smith, Ricardo, and Marx to Marshall and

Keynes. Offered on demand. Prof. Hoppie.

307 International Economics

3 credits. The basic concepts of international trade, international payments, and commercial policy, combining economic theory, policy, and practice. *Prerequisite: Economics 100.* Offered on demand. Prof. Hoppie.

308 Comparative Economic Systems

3 credits. Examination, criticism, and appraisal of alternative economic systems: capitalism, socialism, communism, and mixed economic system. *Prerequisite: Economics 100.* Offered on demand. Prof. Evans.

309 Introduction to Mathematical Economics

3 credits. An application of algebra and elementary calculus to further elaborate economic concepts and problems. *Prerequisites: Economics 100, 102; Mathematics 117 or 121.* Offered on demand. Prof. Evans.

311 Economic Development

3 credits. Examination and substantive analysis of the issues, problems, policies, and theoretical underpinnings of economic development in the Third World countries, including newly industrialized countries. The central thesis is growth, modernization and change with particular emphasis on area and country studies. Offered on demand. Prof. Hoppie.

312 International Political Economy

3 credits. Topical or area studies with international dimension or implications. Examination and analysis of the politico-economic and institutional factors/apparatus that shape economic interrelationships; the nexus between these and development strategies. Offered on demand. Prof. Hoppie.

371-379 Special Topics

3 credits. Topics and problems of current relevance in economics.

480-489 Independent Study

Variable credit. Independent study and research on a problem or topic in the field of economics. *Prerequisites: approval of the department chair and the Independent Study Committee.*

Health Care

322 Health Laws, Issues, and Public Policies

3 credits. An examination of important laws, issues, and public policies pertinent to health care, with attention to regulatory authority, liability, and social policy. *Prerequisite: permission of the instructor.* Fall semester. Odd numbered years. Prof. Gliptis.

Department of Chemistry

Professors Hedrick, Ranck, Schaeffer
Associate Professor Reeder (*Chair, Director of
Clinical Laboratory Sciences*)
Assistant Professor Hagan

Bachelor of Science

Professional Accreditation: The Department of Chemistry is on the approved list of the American Chemical Society, Committee on Professional Training. The affiliation of Elizabethtown with seven accredited hospitals is recorded with the National Accrediting Agency for Clinical Laboratory Sciences.

Chemistry courses contribute to both the liberal arts component and the professional component of the balanced studies that Elizabethtown seeks to foster. Students may choose chemistry as part of their Core Program requirements, as an elective, as a minor area of study, or as a major area of study leading to a career which requires detailed knowledge of chemistry.

Students majoring in chemistry typically go on to graduate studies in chemistry or biochemistry, to hospital or industrial laboratories, to the study of medicine, to secondary education, or to business positions in the chemical industry.

The Department of Chemistry offers two majors: one in biochemistry and one in chemistry with a choice of concentrations, and minors in chemistry and biochemistry.

The Bachelor of Science in biochemistry prepares students for medical school or other health professions schools, graduate study in biochemistry and related fields, or employment that requires baccalaureate education. Premedical and other health professions programs, including the Primary Care Pre-Admissions Program of the Pennsylvania State University College of Medicine, are discussed on page 72.

The Bachelor of Science in Chemistry offers five concentrations: the American Chemical Society approved professional chemistry curriculum, the clinical laboratory sciences curriculum, and the secondary education certification, chemistry management, and chemical physics curricula. The American Chemical Society option prepares the student for graduate school or for a career in industrial or government laboratories. The secondary education curriculum prepares students for high school teaching. The chemistry management option is preparation for sales or management positions in chemical and related industries, and chemical physics is a foundation for work at the interface between chemistry and physics.

There are two options within the *clinical laboratory sciences curriculum* offered in cooperation with hospital programs accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Most students choose the option requiring three years (96 credits) at Elizabethtown College and a 12-month period of study at a hospital approved by the American Medical Association and Elizabethtown College. The degree is usually awarded in August upon the recommendation of the pathologist or program supervisor of the hospital and the clinical laboratory sciences director of Elizabethtown College. Elizabethtown College is affiliated with Harrisburg Hospital, Polyclinic Hospital (Harrisburg), Monmouth Medical Center (Long Branch, N. J.), York Hospital, Lancaster General Hospital, Abington Hospital and Reading Hospital. The second option requires four years of study at Elizabethtown College followed by a clinical year of experience. The clinical year is not required for a degree from Elizabethtown College when

this second option is chosen.

Upon completion of all degree requirements, a student is eligible to sit for national registry examinations. Registry results cannot be released until the degree is granted. It is the student's responsibility to keep the Registration and Records office informed of all personal data changes and the expected date of graduation. A diploma application card should be filed with the Office of Registration and Records in January of the year of the clinical study.

Minors in chemistry and biochemistry prepare students to apply chemical concepts and practices in their major discipline.

Additional options may be tailored to the student's needs in consultation with the student's advisor and the department chair. Students planning much work in chemistry should consult with a departmental advisor as early as possible to plan the sequence of courses in chemistry, mathematics, physics, and biology, which will be to their greatest advantage. Many upper-level chemistry courses have calculus and physics courses as prerequisites. The sequence in secondary education also requires early planning to ensure proper spacing of education courses.

The biochemistry curriculum requires Chemistry 113, 114, 213, 214, 242, 323, 324, 326, 327, 343, 353, 361-2, 461-2, and four credits from among 451, 491, 492, or 496; Biology 111, 112, 324, 324L; 6 additional hours of biology and 3 hours of biology or chemistry; Mathematics 122; and Physics 102.

The A.C.S. approved curriculum requires Chemistry 113, 114, 213, 214, 242, 323, 324, 326, 343, 344, 352, 353, 361-2, 402, 421, 461-2, and four credits from among 451, 491, 492, or 496; Mathematics 222; and Physics 102.

The clinical laboratory sciences curriculum requires Chemistry 113, 114, 213, 214, 323, 324, 326, 327, 361-2; Biology 111, 112, 222, and 235, and electives to total a minimum of 16 semester hours; Computer Science 120 or Ch 353; Mathematics 101 or 121, 151; and Physics 101. For students attending Elizabethtown for three years, these required courses plus Core Program and electives must total 96 semester hours. The clinical year includes a minimum of 29 additional semester hours. For those attending Elizabethtown for four years, additional requirements are Chemistry 242, 461-2, and four credits from among 451, 491, 492, or 496; Mathematics 122; Physics 102; and two additional courses in biology or chemistry.

The secondary education curriculum requires Chemistry 113, 114, 213, 214, 242, 323, 343, 326 or 353, 361-2, and one additional chemistry course; Biology 111, 112; Mathematics 222; Physics 102; and Education 205, 230, 305, 415, and 473. The department also participates in

the general science certification program. For a detailed listing, see page 76.

The chemistry management curriculum requires Chemistry 113, 114, 213, 214, 242, 323, 343, 326 or 353, 361-2, 461-2, and one additional chemistry course; Mathematics 222; Physics 102; Accounting 107; Business Administration 215, 265, 325, 332, 369, 466; and Economics 100, 102.

The chemical physics curriculum requires Chemistry 113, 114, 213, 214, 242, 343, 344, 352, 353, 361-2, 461-2, and at least four credits from 451, 491, 492, or 496; Mathematics 222; and Physics 202. Also, a minimum of three courses from the following: Chemistry 402, 421, two credits from 491, 492, or 496; Mathematics 362; or any 300-400 level physics courses.

A minor in chemistry requires Chemistry 113, 114, 213, 214, and a minimum of four additional semester hours of advanced chemistry as approved by the department faculty.

A minor in biochemistry requires Chemistry 113, 114, 213, 214, and a minimum of four additional semester hours of biochemistry.

The Department of Chemistry participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

101* General Chemistry: Practical Principles

4 credits. **(Natural World)** An introduction to the study of the material world from a phenomenological, measurable, and observable viewpoint. Topics include elements and compounds, weight relationships, states of matter, solutions, descriptive reactivity, reaction energetics, solution equilibria, and organic and biochemical structure and nomenclature. Hours: lecture 3, laboratory 3. *Prerequisite:* high school algebra. Fall, spring semesters. Profs. Hagan, Schaeffer.

105* General Chemistry: Introduction to Molecular Science

4 credits. **(Natural World)** An introduction to the study of the material world from a conceptual, model building viewpoint. Topics include elements and compounds, atomic composition and electronic structure, bonding and molecular structure, physical properties, thermodynamics, and reaction kinetics. Hours: lecture 3, laboratory 3. Fall and Spring semester. Profs. Ranck, Schaeffer.

107* Chemistry of Life: The Biochemistry of Working Out

4 credits. **(Natural World)** Introductory biochemistry course designed for the non-science major. The course introduces the student to the basic biochemistry of how our bodies convert food to usable energy. A unifying theme will focus on the principles behind an aerobic workout as well as the biochemical basis of building muscle mass. Nutritional aspects of physical conditioning will also be addressed. *Note: Students who have credit for Chemistry 207 may not enroll in this course.* Hours: lecture 3, laboratory 3. *Prerequisite:* high school chemistry. Fall semester. Prof. Hagan.

113* Organic Chemistry I

4 credits. **(Natural World)** The first course for those students who plan to take more than one year of chemistry. Topics include formulas, stoichiometry, bonding, geometry, equilibrium, reactivity, kinetics, and instrumentation applied to carbon compounds. The importance of

organic compounds across disciplines and in everyday life will be emphasized. Hours: lecture 3, laboratory 3. Fall semester. Prof. Reeder.

114 Organic Chemistry II

4 credits. A continuation of Chemistry 113, emphasizing synthesis and reaction mechanisms. Hours: lecture 3, laboratory 3. *Prerequisite:* Chemistry 113. Spring semester. Prof. Reeder.

116 Selected Topics in Organic Chemistry

1 credit. Selected exercises for students desiring additional experience in organic chemistry laboratory. Hours: laboratory 3. *Prerequisite or corequisite:* Chemistry 114; *permission of instructor.* Spring semester. Staff.

207* Chemistry of Life: The Biochemistry of AIDS and Cancer

4 credits. (Natural World) This course is designed for the non-science major student who would like to gain a basic understanding of why AIDS and Cancer are such devastating diseases. No previous college course in biology or chemistry is required (or assumed). The principles behind the biochemistry of these diseases will be presented in a clear and understandable manner to foster the student's appreciation of how the human body functions. *Note: Students who have credit for Chemistry 107 may not enroll in this course.* Hours: lecture 3, laboratory 3. *Prerequisite:* high school chemistry. Spring semester. Prof. Hagan.

213 Analytical Chemistry I

4 credits. Quantitative analysis emphasizing classical inorganic, gravimetric, and volumetric methods. Hours: lecture 2, laboratory 6. *Prerequisite:* Chemistry 114 or equivalent. Fall semester. Prof. Hedrick.

214 Analytical Chemistry II

4 credits. A continuation of Chemistry 213, with added emphasis on instrumental methods and computer applications. Hours: lecture 2, laboratory 6. *Prerequisite:* Chemistry 213 or equivalent. Spring semester. Prof. Hedrick.

242 Physical Inorganic Chemistry

3 credits. Thermodynamic stability and bonding in ionic and covalent inorganic substances. Inorganic reactivity in acid-base and oxidation-reduction systems. Some descriptive chemistry of main group and transition metal elements. *Prerequisite:* Chemistry 113. Spring semester. Prof. Schaeffer.

323 Biochemistry I

3 credits. The chemistry of living matter, treating the structures, metabolism, and functions of proteins, lipids, carbohydrates, and nucleic acids. *Prerequisites:* Chemistry 213 and Biology 112 or equivalent. Fall semester. Prof. Hagan.

324 Biochemistry II

3 credits. A continuation of Chemistry 323. *Prerequisite:* Chemistry 323. Spring semester. Prof. Hagan.

326 Techniques of Biochemistry I

1 credit. Techniques used in experimental investigations in biochemistry. Hours: laboratory 4. *Corequisite:* Chemistry 323. Fall semester. Prof. Hagan.

327 Techniques of Biochemistry II

1 credit. A continuation of Chemistry 326. Hours: Laboratory 4. *Prerequisite:* Chemistry 326; *corequisite:* Chemistry 324. Spring semester. Prof. Hagan.

343 Atomic Structure (Physics 221)

3 credits. Twentieth-century developments in the structure of the atom. Topics include X-rays, radioactivity, atomic spectra, blackbody radiation, introduction to quantum theory emphasizing the extranuclear structure of the atom, elementary particles, nuclear structure, and transformations. This course is the same as Physics 221. *Prerequisite:* Physics 102, Mathematics 122. Fall semester. Prof. Ranck.

344 Molecular Structure and Mechanics

3 credits. An extension of quantum theory to molecules and condensed states of matter. Includes principles of optical and magnetic resonance spectroscopy for molecular structure determination and statistical

mechanics as a basis for chemical equilibrium and reactivity. *Prerequisite:* Chemistry 343. Spring semester. Prof. Ranck.

352 Advanced Chemistry Laboratory II

3 credits. Problems and experiments in the determination of molecular structure. Hours: lecture 1, laboratory 7. *Corequisite:* Chemistry 344. Spring semester. Prof. Ranck.

353 Advanced Chemistry Laboratory I (Physics 353)

4 credits. Experimentation, data acquisition, data analysis, and technical presentations appropriate for the physical and chemical sciences. Emphasis on statistics of physical/chemical experimental data and computer methods of analysis, including electronic laboratory notebooks and computer networks. Hours: lecture 2, laboratory 6. *Prerequisites:* Computer Science 115, Mathematics 121, and Physics 102. Fall semester. Prof. Ranck.

361, 362 Chemistry Seminar I, II

1 credit. A two-semester sequence in which a student must present a minimum of one seminar and regularly attend those presented by other students. The student must enroll in both courses to receive credit which is given upon completion of 362. Hours: seminar 1 (Fall), seminar 1 (Spring). Prof. Schaeffer.

371-379 Special Topics in Chemistry

Variable credit. Study of an advanced topic, experimental or theoretical, of interest to the student. *Prerequisites:* *permission of instructor and department chair.* Staff.

402 Advanced Inorganic Chemistry

3 credits. A study of the elements and their compounds based upon atomic and molecular structure. *Prerequisite:* Chemistry 344. Spring semester. Prof. Schaeffer.

421 Advanced Organic Chemistry

3 credits. A study of organic reactions based on experimental and advanced theoretical studies. *Prerequisite:* Chemistry 344. Fall semester. Prof. Hagan.

451 Advanced Chemistry Laboratory III

4 credits. Designed primarily to acquaint the student with synthetic methods in inorganic chemistry as well as product purification and identification. Hours: lecture 3, laboratory 4. *Prerequisite:* Chemistry 242. Fall semester. Prof. Schaeffer.

461, 462 Chemistry Seminar III, IV

1 credit. A two-semester sequence in which a student must present a minimum of one seminar and regularly attend those presented by other students. The student must enroll in both courses to receive credit which is given upon completion of 462. Hours: seminar 1 (Fall); seminar 1 (Spring). Prof. Schaeffer.

460-469 Clinical Courses in Clinical Laboratory Sciences

29 credits (minimum). Instruction during the clinical year includes the following courses.

Clinical Microbiology — Identification and clinical pathology of bacteria, fungi, viruses and parasites. Techniques to isolate, stain, culture, and determine antimicrobial susceptibility. Instrumentation; quality control.

Clinical Chemistry — Enzymology, endocrinology, biochemistry of lipids, carbohydrates and proteins, metabolism of nitrogenous end products, physiology and metabolism of fluids and electrolytes, and toxicology as related to the body and diseases. The technical procedures include colorimetry, spectrophotometry, electrophoresis, chromatography, automation and quality control.

Clinical Hematology/Coagulation — The composition and function of blood; diseases related to blood disorders; the role of platelets and coagulation. Manual and automated techniques of diagnostic tests for abnormalities.

Clinical Immunohematology — Blood antigens, antibodies, crossmatching, hemolytic diseases, and related diagnostic tests. An in-depth study of blood donor service and its many facets such as transfusions, medico-legal aspects, etc.

Clinical Immunology/Serology — Immune response, immunoglobu-

lins, autoimmunity and complement and related tests and diseases. Survey and demonstration of serological diagnostic tests.

Clinical Seminar — Other courses which are not included in the above (such as orientation, laboratory management, education, clinical microscopy) and/or are unique to the individual hospital program.

Prerequisite: admission to the medical technology school of the cooperating hospital.

491-492 Research in Chemistry

Variable credit. An original experiment or theoretical investigation under the close supervision of a faculty member. Experimental design and a written report are required. *Prerequisite:* permission of instructor. Staff.

496 Independent Problems in Chemistry

Variable credit. An independent experimental or theoretical investigation under the close supervision of a faculty member. Experimental design and a written report are required. *Prerequisite:* permission of instructor. Staff.

Education 305 Practicum in Secondary Education: Science

4 credits. Teaching science in secondary schools. *Prerequisite:* Education 230.

Department of Communications

Professor Moore

Associate Professors, Smith, Wennberg (*Chair*)

Assistant Professor Dye

Instructor Gillis

Bachelor of Arts

The Department offers a comprehensive preparation in the field of communications firmly grounded in a well-rounded liberal arts education. In addition to developing skills in written, spoken, and visual communications, students learn the theory, design, management, and production of communication. Courses in oral communication, graphics, audio and video production, among others, permit upperclass majors to advance into areas of concentration such as Corporate Media, Public Relations, and Mass Communication.

Department facilities are located in the Steinman Center for Communications and Art. This center contains modern equipment in audio and video studios, satellite communications and in photography, graphics, and multi-image laboratories. The student radio station, WWEC-FM, and the 24-hour local access cable television production facility, ECTV-Channel 40, are housed in the center.

The curriculum is complemented by a number of departmental student organizations: WWEC-FM Radio, Photography Club, Forensics Club, Society for Collegiate Journalists, Honorary Journalism Society, International Association of Business Communicators (Elizabethtown College chapter), ECTV, and Delta Sigma Rho-Tau Kappa Alpha (Honorary Forensics Fraternity). In addition, *The Eltonian* (student newspaper) and the *Conestogan* (yearbook), as nondepartmental student activities, provide excellent journalism experiences for majors.

These organizations sponsor speakers, workshops, contests, and trips to enhance campus life and especially to make the student's classroom experience more meaningful.

The curriculum, complemented by many cocurricular activities, prepares majors for careers in corporate and institutional communications, public relations, broadcasting, newspaper and magazine writing and reporting, advertising, sales, law, the ministry, and many more fields.

The 44 credits required for a bachelor of arts degree with a *communications major* include Communications 109, 115, 125, 205 (repeated for four semesters), 210, 215, 225, 235, 248, 485; Computer Science 120 (Introduction to Computer Processing for the Macintosh), and 12 credits in a concentration. All majors are strongly encouraged to complete a minor area of study chosen in consultation with their advisor. Graduates are prepared as communications generalists. However, required additional courses in an area of concentration permit students to focus their general preparation into a specific area of career interest. The minor allows for complementary preparation in another discipline. Prior to preregistration for the junior year, the student must elect a communications concentration which requires 12 credits. The Department offers *three concentrations*.

The corporate media concentration prepares a student as a designer, producer, and a manager of a variety of internal/external media programs and facilities for business, industry, and other institutions. The student is required to complete Communications 333, 348, and two electives to be chosen from Communications 336, 408, and 424.

The public relations concentration permits a graduate to apply learning in areas of human relations, advertising, interpersonal communications, and corporate communications. Requirements are Communications 311, 351, 412, and one elective to be chosen from the following: Communications 314, 316, 333, 348, and 408.

The mass communication concentration, in addition to basic preparation in communications, develops competencies in areas of broadcast and print journalism. Required are Communications 311, 314 or 316, and two electives to be chosen from the following: Communications 314, 316, 321, 336, 348, 422, and 424.

A minor in communications is offered to students majoring in other departments. The minor permits a student to reach a level of competency in written, spoken, and visual communications to complement their primary area of preparation. The 25 credits required for a minor in communications include Communications 109, 115, 125, 205 (repeated for two semesters), 225; Computer Science 120 (Introduction to Computer Processing for the Macintosh); and 9 credits of approved departmental electives at or above the 200 level.

No more than 57 credits in Communications may be

counted toward graduation.

Requirements for Communications Majors and Minors

All students must have a 2.0 grade point average to declare the major or minor and enroll in any courses above the 100 level.

Internships and Practica

Out-of-classroom, on-the-job field experiences are encouraged of all students. An experience linking the academic world and the work world, can enable an advanced student to apply, in a practical way, understandings and abilities in a career-related position.

Practica may be elected at any time and are available for no more than three semester credits with on or off campus sponsors. Internships are available only to seniors and must be taken only for twelve semester credits (requiring the internship to be the equivalent of a full-time position for a complete semester). Additionally, the internship option requires an overall 2.7 grade point average and a 3.0 grade point average in the major.

Practica are repeatable to a maximum of three credits and may count only as general elective credit. Internship credits also count as general elective credits.

The Department's "Guide to the Preparation of Internships" serves as an outline of procedures and requirements for an internship. Students are permitted to seek their own positions for either option or to select one from more than 100 opportunities already negotiated with regional communications organizations.

The department has also become affiliated with other major institutions and organizations to assist in providing internship experiences in major urban areas. These affiliations include: the Washington Center for Politics and Journalism, the American University Washington Semester Program, the Boston University Washington Internship Program (through the Political Science department), the Washington Center for Internships and Academic Seminars, the Intern Placement Service (in New York City and throughout New Jersey), The Philadelphia Center: A Great Lakes College Association Program, and, with Fordham University's The New York Semester.

Students electing these options are encouraged to consider the purchase of temporary professional liability/casualty insurance. The College assumes no liability for the student during the course of the person's performance of duties for an off-campus sponsoring organization.

Related Expenses

Additional expenses for the communications student normally include production materials for audio, video, and graphics courses. These expenses are part of the following courses: Communications 125, 215, 225, 235, 321, 336, 348, and incidentals in other courses.

It is strongly recommended that communications majors

obtain a Macintosh computer which is used in several courses. Educational discounts are available if the computer is purchased through the College.

The Department of Communications participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

105* Fundamentals of Speech

3 credits. (**Power of Language**) Basic instruction in developing poise and confidence in speaking. Emphasis is placed on verbal and nonverbal communications, research, outlining, speech preparation, use of visual aids, and the rudiments of group dynamics and discussion. *Available only to students with English 150 placement level, if course is to be used for Power of Language requirement.* Prof. Dye.

109 Communications Theory

3 credits. Students explore and examine the processes of human communication as related to various aspects of human experience. Focus is on several levels, individual, interpersonal, and mass, examining such aspects as speech production, sender/receiver relationships, listening, nonverbal communication and the use of symbols. Students explore mass media from a human communication perspective. Staff.

115* Media and Society

3 credits. (**The Social World**) An examination of the structures, functions, political, social, and economic impacts of mass media in the U.S. A goal is to help make students critical and analytical consumers of the mass media. Profs. Moore, Severeid.

125 Introduction to Media Production

3 credits. The course provides the design, theory and development of production skills and techniques for a variety of audio-visual materials, photography, and print materials. Students are required to participate in labs dealing with the operation and utilization of production equipment and the actual production of materials, including a multi-image presentation. Profs. Moore, Wennberg.

205 A—D Applied Communications

.5 credit. Four semesters of participation in approved cocurricular activities is required of all majors. All participants must meet the standards of the activity in order to count toward meeting the requirement. The four semesters of participation must be in different, approved activities. These include: a. WWEC-FM, b. Forensics, c. *Etownian* and *Conestogan*, d. ECTV. Communication minors are required to have two semesters of participation in any two activities. A communications major or minor may enroll in no more than one 205 course per semester. All 205 requirements must be completed by the end of the junior year. *Graded Pass/Fail.* Staff.

210 The Oral Communicator

3 credits. Students become proficient at translating the written word into an oral performance. Exercises and projects develop competence in a variety of areas appropriate to any of the communications concentrations that may be chosen by a major. *Prerequisites: Communications 105 or 109.* Profs. Dye, Severeid, Smith.

215 Layout and Graphics

3 credits. The principles of design, typography, and assorted methods of production to provide a foundation in the preparation of posters, newsletters, magazines, special interest publications, and slide graphics. Elements of desktop publishing are included. Students are required to purchase production materials for the course. Access to a Macintosh computer is highly recommended. *Prerequisites: Communications 125 and Computer Science 120 (for the Macintosh).* Profs. Gillis, Wennberg.

225 Audio: Theory and Practice

3 credits. The technical and aesthetic fundamentals of audio field and studio production. Through the development of basic technical and critical skills, the student will become knowledgeable in writing and

producing basic audio projects. A general overview of the history of radio is included. Students are required to purchase production materials for the course. *Prerequisite: Communications 125.* Prof. Smith.

235 Video: Theory and Practice

3 credits. The technical and aesthetic fundamentals of video field and studio production and postproduction. Through the development of basic technical and critical skills, the student will become knowledgeable in writing and producing basic video projects. A general overview of the history of broadcast television is included. Students are required to purchase production materials for the course. *Prerequisite: Communications 225.*

245* Communication Analysis and Culture

3 credits. (Cultural Heritage) A critical exploration of rhetorical theories from the ancient period to the modern which focus primarily on the spoken word. The validity and impact of these communication theories will be analyzed within the bounds of current thought and in context of the theory's contemporary beliefs. Spring Semester. Prof. Dye.

248 Communication Law and Ethics

3 credits. An examination of the law of the field of communications as well as its history and effects. Current ethical issues are explored through case studies. *Prerequisite: Communications 115 or permission of instructor.* Prof. Sloane.

301 Interpersonal Communication

3 credits. The theory and application of interpersonal relationships on the personal, educational, and organizational levels. Spring semester, odd numbered years. Prof. Dye.

304 Persuasion

3 credits. The theory and techniques of persuasion from the perspective of the persuader and the audience. Topics include the ethics, social responsibility, and motivation of persuasion; the techniques of nonverbal communication and mass appeals. Spring semester, even numbered years. Prof. Dye.

311 Reporting and Newswriting for the Media

3 credits. An introductory study of news media and values, with emphasis on effective reporting and clear writing against deadlines. Accuracy, fairness, and logic in preparing stories under conditions similar to those encountered by professional journalists is stressed. *Prerequisite: Communications 115 or permission of the instructor.* Prof. Gillis.

314 Feature Writing for the Media

3 credits. Skills needed to write free-lance articles or presentations on any topic to a wide range of media are developed. Among types of writing covered are human interest, personality sketch, humor, how-to, background and informational pieces. Story titles, openings, closings, structure, use of anecdotes, and statistics are examined. *Prerequisites: For majors: Communications 311 or permission of the instructor. For Professional Writing students: two Professional Writing courses and permission of the instructor.* Spring semester, odd numbered years. Prof. Gillis.

316 Broadcast News and Copywriting

3 credits. The styles and techniques of writing for the broadcast media, with emphasis on conceptualizing, writing, editing copy, continuity, and news for radio and television. *Prerequisite: Communications 225, 235, 311, or permission of instructor.* Spring semester.

321 Advanced Audio Production

3 credits. An advanced examination of writing and producing audio materials for radio broadcasting. In-depth analysis of the medium includes commercials, news, documentaries, and special programs. Students are required to purchase production materials. *Prerequisites: Communications 225 and 235.* Fall semester, even numbered years. Prof. Smith.

333 Organizational Communication

3 credits. Through theory, application, and practice, this course explores aspects of organizational communication in order to prepare students for the challenges of organized activity at work, in the community, and in the family. Fall semester. Prof. Dye.

336 Advanced Video Production

3 credits. Development of the ability to produce programs, commercials, newscasts, and other broadcast and nonbroadcast productions. Students produce a number of class projects, applying video techniques to the fields of broadcast television, cable, corporate/educational/medical productions, production houses, and other nonbroadcast uses. Students are required to purchase various production materials. *Prerequisites: Communications 235, 205-ECTV (may be a corequisite).* Spring semester.

348 Advanced Media Production

3 credits. Advanced-level instruction in the conceptualization, design, development, and management of communications media in the areas of photography and multi-image. Students participate in laboratory experiences dealing with the production of photography and multi-image at the advanced level. The basic and advanced theories and applications of training, color photography, and computer graphics are explored to aid the student in the creative production of communications materials. Students are required to purchase production materials for the course. *Prerequisites: Communications 125, 225, and 235, or permission of instructor.* Fall semester. Prof. Wennberg.

351 Public Relations

3 credits. A study of the theory and practice of public relations, its role in administration, its role in society, and its potential as a career. *Prerequisite: Communications 311 or permission of instructor.* Fall semester. Prof. Gillis.

371-379 Special Topics

Variable credit. Periodic offerings of the Department or directed study in topics of special interest to advanced majors. *Note: These courses generally count as elective credit in all concentrations.* Staff.

408 A Systems Approach to Organizational Training

3 credits. Students study the theory and application of instructional systems design techniques to corporate and organizational training problems. Applications of interactive computer techniques will be used to solve training problems. Spring semester. Prof. Moore.

411 Telecommunications

3 credits. Recent technical developments in the field of communication and their potential sociocultural impact and resulting problems/advances related to utilization of the new systems. Periodic offering. Prof. Moore.

412 Advanced Public Relations

3 credits. The opportunity for a student to build upon knowledge, skills, and expertise in public relations by applying them to the study of actual public relations cases. The analysis and evaluation of actual public relations practice leads the student to a better knowledge of public relations principles, application, and management in the profession. Case studies include organizations in business and industry, associations and agencies, government, and education. *Prerequisite: Communications 351.* Spring semester. Prof. Gillis.

422 Media Management

3 credits. The structure and organization of media institutions, including broadcasting and print facilities. Management principles and perspectives are discussed in their application to media departments and personnel. *Prerequisites: Communications 225, 235, 248.* Fall semester, odd numbered years. Prof. Severeid.

424 Script and Screenwriting

3 credits. The course emphasis will be placed on identifying the tools used in successful, creative writing, and then putting them into practice. The student will become familiar with, through study and practical application, the various visual/audio formats used in dramatic radio, television, and film scripting and writing. Spring semester, odd numbered years. Prof. Severeid.

471, 472 Practicum and Internship

Variable credit. Supervised application of previously studied theory by professionals in the field of the student's concentration: Corporate Media, Public Relations, Mass Communication. *Practicum — on or off-*

campus sponsor for free elective credit only, repeatable to a maximum of three credits, majors and minors. Graded Pass/No Pass. Prof. Wennberg.

474 Internship

12 credits. *Prerequisites:* senior standing, majors only, 2.7 cumulative grade point average with a 3.00 grade point average in the major. Must be taken for a full semester off-campus for free elective credit only. Prof. Wennberg.

480-489 Independent Study

Variable credit. A specially-designed course, unique to each student, which allows the person the opportunity to pursue scholarly and practical work in the area of major interest under the guidance of members of the communications faculty. Specific goals and objectives permit the student to complete special projects, literature reviews, and research papers. *Prerequisites:* at least junior standing, scholarship requirement, permission of instructor, and approval of Independent Study Committee. Staff.

485 Communications Seminar

3 credits. A final course required of all majors, integrating the theory and skills developed in preceding courses. As an individualized learning experience, the course provides opportunities for research, experimentation, project development, analysis, and practice of methods in each major's area of concentration. *Prerequisite:* senior standing. Profs. Moore, Wennberg.

Department of Computer Science

Professor C. Kreider

Associate Professors Leap, Tulley (*Chair*)

Instructor Weavill

Parttime Instructor R. Evans

Bachelor of Science

The advent of high-speed machines with enormous capacity for the gathering, processing, storage, retrieval, and communication of information affects nearly every aspect of our professions and our daily lives. Courses in computer science encourage the exploration and understanding of this social and technological phenomenon. Survey courses are offered for those who wish to understand in broad social contexts the nature of the computer and its effect on our lives and on society. Programming and language courses are offered for those who need to become skillful users of the computer. Advanced study in theory, hardware, software, and applications is provided for the computer science major and for those who want to use the computer effectively and knowledgeably in another discipline. Advanced courses relate closely to the curricula in business, the natural and social sciences, engineering, and mathematics. Students are encouraged to develop simultaneous strengths in computing and in a discipline in which the computer is used as a tool.

The department offers three majors—one in *computer science*, one in *computer science/business information systems*, and another in *computer engineering*, which is offered in conjunction with the Department of Physics. Each major provide a strong curriculum from which a professional career may be launched or a graduate program pursued.

The department also offers a *minor* that enables majors in other disciplines to obtain recognition for course work in computer science. Department faculty help tailor the elective course selections to meet individual needs of students pursuing a minor.

The College's main computing facility, housed in Nicarry Hall, consists of two Digital Equipment Corporation computer systems. The VAX 4000 cluster is used primarily for administrative purposes. The DEC Alpha is dedicated to academic use.

The College also has available for student use a variety of personal computers connected to a network, including Apple, IBM, and Pentium machines.

In addition to five general use computer laboratories and computer sites, the Computer Science Department maintains a computing laboratory for use by majors and advanced computer science students. The equipment in this laboratory includes Intel Pentium-based computers set up as Unix workstations, PCs running Windows 95, a Transputer-based Hypercube parallel computer, and equipment for building and experimenting with computer networks and distributed computing systems. The department also maintains a computer interfacing and electronics design laboratory.

The department strongly recommends that students purchase their own DOS-based personal computer. To facilitate this, the College supports a computer purchase program through which students may purchase IBM PC's at excellent prices. Students can learn to build their own personal computer as part of several computer science courses.

Major software systems available on the computers include most major computer languages (Actor, Ada, BASIC, Pascal, C, C++, COBOL, FORTRAN, Modula and assembly language); many specialized languages and packages (SPSS, Minitab, GPSS, Dbase III+, Page Maker, Lotus 1-2-3, PowerPoint and WordPerfect); and relational data base management systems.

The department maintains the College World Wide Web server (<http://www.ETOWN.EDU>). All students are assigned accounts on the DEC Alpha with access to the Internet.

All computer science and computer science/business information systems majors are required to take a minimum of 39 credits of computer science courses.

The computer science major is required to take Computer Science 121, 122, 221, 222, 321, 322, 332, 341, 421 or 422, and 490, plus nine credits of computer science electives at or above the 200 level; Mathematics 121, 122, and 201; and a minor in another discipline.

The computer science/business information systems major is required to take Computer Science 121, 122, 221, 222, 235, 332, 335, 341, 409, 490, and nine credits of computer science electives at or above the 200 level; Mathematics 117, 151; Accounting 107, 108; Business Administration 215, 265, 325; and Economics 100, 102.

The computer engineering major requirements are specified under the Department of Physics.

The requirements for a computer science minor are Computer Science 121, 122, 221, 222, and three additional computer science courses approved by the computer science faculty.

The Department of Computer Science participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

115 Introduction to Scientific Computing

1 or 3 credits. An introduction to the use of computers for scientific applications. Topics include algorithmic problem-solving techniques, syntax of an appropriate programming language, data representation, file handling, and the use of subprograms. (Students who have passed Computer Science 121 receive one credit for this course. This course does not count towards a computer science major or minor). Prof. Reeder.

120 Introduction to Microcomputer Applications

3 credits. An overview of computer concepts, uses, and issues. The personal computer operating system and several software packages (database, desktop publishing, spreadsheet, and word processing) are a major component. Staff.

121* Computer Science I

1 or 3 credits. (Mathematical Analysis) The fundamental concepts of computer organization, machine level representation of data, algorithmic development and structured programming are presented with an emphasis on the syntactic and execution characteristics of a structured programming language (currently Pascal) including data types; arithmetic operators and assignment; input/output, selection and iteration structures; elementary data structures; and procedural abstraction. *Prerequisites: high school algebra and/or trigonometry.* (Students who have successfully completed Computer Science 115 will receive one credit for this course.) Staff.

122 Computer Science II

3 credits. A continuation of 121 with emphasis on algorithmic analysis, recursion, internal sort and search methods, string processing, fixed and variant record structures, and file handling using a second programming language (currently C) and the UNIX operating system. *Prerequisite: Computer Science 121.* Staff.

221 Algorithms and Data Structures

3 credits. The design of algorithms for handling abstract data types including stacks, queues, linked lists and trees is coupled with an introduction to complexity analysis, storage allocation and its management. *Prerequisite: Computer Science 122.* Fall semester. Staff.

222 Assembly Language Programming

3 credits. Introduction to programming at the machine and assembly level, including the relation to computer organization and the operating system interface. Topics include absolute and relocatable coding, program segmentation and code sharing, program linkage and loading, assembler operation, and macros. *Prerequisite: Computer Science 122.* Spring semester. Staff.

230 Microcomputer Architecture (Engineering 230)

3 credits. The operation of the microcomputer, the physical characteristics of its architecture, and the implementation of software are discussed. The course explores the UNIX, Macintosh, and IBM operating environments. Topics covered include computer ethics, hardware components such as memory registers, central processor types, controllers, peripherals such as disk drives and tape drives, ASCII code implementation, input/output architecture and devices, memory management, networking, and multimedia. *Prerequisite: Computer Science 122.* Prof. R. Evans.

235 Introduction to Business Computing

3 credits. The application of the computer in a business environment. Topics include the structure of data, sequential file processing, table organization and processing, design and debugging techniques using COBOL. *Prerequisite: Computer Science 121.* Fall semester. Staff.

321 Discrete Structures (Mathematics 231)

3 credits. Topics in discrete mathematics as they apply to computer science, including sets, relations, graphs and trees, Boolean algebras, groups and fields. Fall semester.

322 Formal Languages

3 credits. A discussion of grammar classifications as a formal description for programming language syntax, finite state machines as acceptors of regular expressions, and the equivalence of push-down automata and context-free grammars and their use in parsing programming languages. *Prerequisites: Computer Science 221, 321.* Spring semester, odd numbered years. Prof. Tulley.

332 Computer Organization and Architecture (Engineering 332)

3 credits. Introduction to Boolean algebra, design of combinational and sequential circuits, and their use in von Neumann computer architecture. Basic parts of computer systems including memory, control and input-output systems are studied. The student is expected to design a simple micro-programmed computer. *Prerequisite: Computer Science 222.* Fall semester. Prof. Leap.

333 Digital Circuits and Computer Interfacing (Engineering 333)

4 credits. Digital logic and integrated circuits to implement logic; architecture and machine language programming of mini-computers and microprocessors; design, testing, and construction of instrument-to-computer and computer-to-instrument interfaces; design and testing of supporting software. *Prerequisite: Computer Science 122.* Spring semester, odd numbered years. Prof. Leap.

335 Programming Business Applications

3 credits. An advanced study of the COBOL language and a study of the concepts and techniques of sorting and searching, report generation, file processing, and structuring data in files including random and ISAM files. Projects relating to programming in business will be assigned. *Prerequisite: Computer Science 235.* Spring semester. Staff.

340 Information Systems

3 credits. A study of information systems from the user's point of view to give the potential manager an appreciation for the information requirements of an organization as well as the manager's role in the design of such systems. Topics include information and systems theory; the relationship between management, systems, software applications, and information; and an investigation of information systems of the various functional areas within the organization. *Prerequisites: Computer Science 120 or 121; Business Administration 215, 265.* Spring semester. Prof. C. Kreider.

341 Systems Analysis and Design

3 credits. Analysis and design of computer-based and manual systems, including a study of information requirements, design approaches, processing methods, and data management systems. *Prerequisite: Computer Science 122 or 235.* Fall semester, odd numbered years. Prof. R. Evans.

342 Computer Networks

3 credits. Provides the student with the theory and knowledge of computer networks, the operation of the network, the characteristics of the network architecture as it relates to the ISO model, administration. Security and management of the network are also discussed. The course contrasts network operating systems, including TCP/IP, Novell, Token Ring and AppleTalk. Topics covered include network security, network management, the ISO model, network hardware requirements, such as routers, repeaters, gateways, interface cards, file servers, network topology options, and the Internet. *Prerequisites: Computer Science 221; Mathematics 117 or 122.* Prof. R. Evans.

344 Simulation

3 credits. Fundamentals of modeling, stochastic processes, statistical

measures of validity, and queuing theory. Applications are programmed in higher-level languages as well as a specialized simulation language. *Prerequisites:* Computer Science 221; Mathematics 151; or permission of instructor. Prof. Tulley.

361 Computer Graphics

3 credits. Overview of the principles of computer graphics including the basis of raster and vector display devices; representation of lines, and curves, two- and three-dimensional scaling; hidden lines and surfaces; and animation techniques involving interactive graphics and the user interface. *Prerequisites:* Computer Science 221 and Mathematics 201. Staff.

362 Comparison of Programming Languages

3 credits. Comparative study of programming language concepts including data objects and data types, scope, procedures, abstraction mechanisms, sequence control, exception handling and concurrency, providing a framework for understanding language design. Intended to provide the necessary tools for critically evaluating existing and future languages and language constructs. *Prerequisite:* Computer Science 221. Prof. Tulley.

371-379 Special Topics

3 credits. A course designed to allow students to examine topics and problems of current relevance in computer science. *Prerequisite:* permission of instructor. Staff.

409 Data Base and Information Systems

3 credits. A study of database design and management techniques. Topics include data models (E-R, relational); query languages; data dictionary; implementation of a relational database kernel; file security; and various database implementations (hierarchical, network, relational). *Prerequisites:* Computer Science 221 and 341 or permission of instructor. Spring semester, even numbered years. Prof. R. Evans.

421 Programming Language Systems

3 credits. Design and construction of system software such as text editors, compilers, interpreters, and assemblers. Topics include command and statement parsing techniques, symbol tables, code generation, code optimization. A project involving design and construction of a working systems program will be assigned. *Prerequisites:* Computer Science 222, and either Computer Science 322 or permission of the instructor. Fall semester, odd numbered years. Prof. Leap.

422 Operating Systems and Systems Programming (Engineering 422)

3 credits. An examination of the principles and theories behind the design of operating systems as well as their practical implementation. Topics include executives and monitors, task handlers, scheduling algorithms, file handlers, device drivers, and interrupt handlers, theories of resource allocation and sharing, multiprocessing and interprocess communication. *Prerequisites:* Computer Science 332. Spring semester, even numbered years. Prof. Leap.

471 Internship in Computer Science

Variable credit. Work experience designed to supplement course work. By working for business, school, or government, the student gains valuable knowledge unavailable from textbooks. *Prerequisite:* approval of the computer science faculty. Graded Pass/No Pass. Prof. R. Evans.

480-489 Independent Study

Variable credit. Designed to allow the student to do independent study and research on a problem or topic in the field of computer science. *Prerequisite:* approval of the computer science faculty and the Independent Study Committee. Staff.

490-491 Readings and Projects in Computer Science

3 credits. A directed project or study requiring faculty acceptance of a proposal with a final report and defense of work. *Prerequisites:* senior status or permission of instructor. Spring semester. Staff.

Earth Science

See Department of Physics, page 59.

Department of Education

Associate Professors Bartoli, Blue (*Chair*), Boothby, Fox
Assistant Professors O'Grady, Toro

Bachelor of Science

The department offers major programs in early childhood (N-3) and elementary education (K-6) which combine a strong liberal arts education with the development of high professional competence. Supported by the Core Program, the student's minor, and elective coursework, these major programs bring together in a creative way the student, the school, and the subject to be taught. Further, the department stresses the importance of supervised field experiences which complement on-campus courses in education. A dual major in early childhood and elementary education is also available.

Bachelor of Arts or Bachelor of Science

Programs in secondary education are available in selected academic areas (English, mathematics, biology, chemistry, physics, general science, and social studies). Carefully designed work in the academic or interdisciplinary major, the Core Program, and electives, qualifies students for the degree appropriate to that major. A program in music education (K-12) is also available (see the Department of Fine and Performing Arts).

Certification

The department and the College act as agents of the Commonwealth of Pennsylvania in the teacher certification process for those meeting the standards.

General Requirements of the Programs

Admission to the Programs

1. Make written application to the Department of Education after:
 - a) Completion of a minimum of 30 credit hours with a cumulative grade point average of 2.5 or higher.
 - b) Completion of Education 205 and 245 (elementary education, early childhood education, or dual major in elementary and early childhood education), Education 205 and 230 (secondary education), or Education 205 (music education), with a minimum grade of C (2.0).
2. Submit a TB medical clearance.
3. Provide a record of Act 34 and FBI criminal record

clearance.

4. Declare a college approved minor (elementary education, early childhood education, and dual major in elementary and early childhood education only)
5. Receive approval of the Department of Education and the major department(s)
6. Present a portfolio demonstrating interest and/or experience in professional education and progress toward meeting required competencies.

Progress in the Programs

1. Receive no grade lower than C- in any course required in the program.
2. Receive passing scores on the General Knowledge and Communication Skills tests of the Core Battery of the NTE.
3. Maintain a portfolio demonstrating interest and experience in professional education and progress toward meeting required competencies.
4. Maintain both a cumulative and major grade point average of 2.5 or higher. If a cumulative or major grade point average of 2.5 is not maintained, students are not permitted to enroll for additional education courses, except with the permission of the department.

Note: Students are evaluated at the conclusion of each semester and may be advised to withdraw at any time the department determines such action to be appropriate.

Exit from the Programs

1. For the major only (no certification):
 - a) Complete all requirements of the major, except the professional internship, with both a cumulative and major grade point average of 2.0 or higher.
 - b) Complete a College approved minor (elementary education, early childhood education, or dual major in elementary education and early childhood education only) with a minimum grade point average of 2.0.
 - c) Complete an alternative internship experience of at least 6 credits, approved by the Department of Education.
2. For the major and certification:
 - a) Complete all requirements of the program with both a cumulative and major grade point average of 2.5 or higher.
 - b) Earn a grade of P in the professional internship.
 - c) Complete a College approved minor (elementary education, early childhood education, or dual major in elementary education and early childhood education only) with a minimum grade point average of 2.0.
 - d) Receive passing scores on the Professional Knowledge test of the Core Battery and on the Specialty Area test of the NTE.
 - e) Receive approval of the Department of Education and the major department(s).
 - f) Present a portfolio summarizing one's activities

and experience in professional education and demonstrating satisfaction of all required competencies.

- g) Arrange for NTE scores to be sent to the department.
- h) Complete application for certification.

Special Requirements of the Programs

Students in the *elementary education program* must complete Education 205, 245, 250, 265, 325, 335, 345, 355, 365, 385, and 472; complete studies in American history, geography, economics, life science, and mathematics (maximum of 16 credits); and complete a college approved minor.

Students in the *early childhood education program* must complete Education 205, 245, 250, 265, 315, 320, 325, 335, 345, 355, 365, 385, and 471; complete studies in American history, geography, economics, life science, and mathematics (maximum of 16 credits); and complete a college approved minor.

Students in the *dual elementary and early childhood education program* must complete Education 205, 245, 250, 265, 315, 320, 325, 335, 345, 355, 365, 385, and 474; complete studies in American history, geography, economics, life science, and mathematics (maximum of 16 credits); and complete a college approved minor.

Students in the *secondary education program* must complete an academic or interdisciplinary major as outlined by an area which supports a certification program; complete Education 205, 230, 305, 415, and 473; and satisfactorily complete all other program requirements.

The Department of Education participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

205 Foundations of Education

3 credits. A study of the historical, philosophical, sociological, and political foundations of education. Emphasis is on critical understanding of educational thought and practice in order to identify, interpret, and search for resolution of educational controversies and problems.

230 Analysis of Instruction

4 credits. A study of factors underlying and supporting the teaching and learning process. Topics include: human growth and development, exceptionality, multiculturalism, motivation, teaching and learning theory, social learning, instructional design and management, and media and technology. Field experience required. *Prerequisite:* Education 205.

245 Teaching and Learning Processes

3 credits. A study of factors underlying teaching and learning processes, including human growth and development, exceptionality, multiculturalism, motivation, teaching and learning theory, and context-specific analysis. Requires field experience.

250 Foundations of Literacy

3 credits. A study of emergent literacy and strategies for teaching

beginning reading in an integrated language arts curriculum. Includes an introduction to children's literature. Requires field experience. *Prerequisites: Education 205 and 245. Corequisite: Education 265.*

265 Instructional Media and Technology

3 credits. A study of instructional media and basic media design stressing planning, producing and applying instructional media. This course includes evaluation and use of commercial software, data bases, desktop publishing, simulations and problem solving for elementary certification candidates. Requires field experience. *Prerequisites: Education 205 and 245. Corequisite: Education 250.*

305 Methods of Secondary Education

4 credits. A study of the instructional methodology of an academic discipline under the guidance of a clinical professor in the academic major. Field experience required. *Prerequisite: Education 230.*

310 History of Science

1 credit. Selected readings from texts on the history of science. *Prerequisite: Must be in the General Science Secondary Education Certification Program and have permission of the instructor.*

315 Early Childhood Education

3 credits. A study of programs for young children with regard to theoretical base, curricular goals, teacher role, physical environment, and program sponsorship. Requires field experience. *Prerequisites: Education 250 and 265.*

320 Special Methods in Early Childhood Education

3 credits. A study of developmentally appropriate procedures and materials for the preschool child, emphasizing the importance of play in Early Childhood programs. Requires field experience. *Prerequisites: Education 250 and 265.*

325 Science and Health in the Elementary School

3 credits. A study of science processes in an elementary school program; the utilization of multiple resources, organization, management, evaluation, instructional strategies, and integration of science and health in the elementary school program. *Prerequisites: Education 250 and 265. Corequisites: Education 335, 345, 355, 365, and 385.*

335 Mathematics in the Elementary School

3 credits. A study of how children develop a background of understanding and skill in mathematics, concentrating on the development of problem solving, reasoning, and communication skills in mathematics, and connecting mathematics and the real world. Additional focus will be on organization for instruction, alternative means of evaluation, teaching special needs and at-risk students. *Prerequisites: Education 250 and 265. Corequisites: Education 325, 345, 355, 365, and 385.*

345 Reading and the Integrated Curriculum

3 credits. A study of the processes of learning to read and think critically about texts across the K-6 curriculum. The approach of the course is literature-based and student centered, and it includes both creating and evaluating an integrated curriculum for strategic meaning-making. *Prerequisites: Education 250 and 265. Corequisites: Education 325, 335, 355, 365, and 385.*

355 Writing and the Integrated Curriculum

3 credits. A study of writing instruction and its integration across the elementary school curriculum. *Prerequisites: Education 250 and 265. Corequisites: Education 325, 335, 345, 365, and 385.*

365 Social Studies for Elementary Education

3 credits. A study of content, teaching strategies, materials, organizing approaches, and curricula for teaching social studies in the elementary school. *Prerequisites: Education 250 and 265. Corequisites: Education 325, 335, 345, 355, and 385.*

371-379 Special Topics in Education

Variable credit. Topics chosen in response to student and faculty interests. *Prerequisite: permission of instructor.*

385 Elementary Education Practicum

1 credit. Supervised field placement. *Prerequisites: Education 250 and*

265. Corequisites: Education 325, 335, 345, 355, and 365.

415 Reading in the Content Area

2 credits. A study of the theory and practice of secondary education with an emphasis on developmental reading and reading in the content area. *Prerequisite: Education 305. Corequisite: Education 473.*

471 Professional Internship

16 credits. Student teaching for seven weeks in a pre-K setting and for seven weeks on a K-3 setting. *Prerequisites: Education 315, 320, 325, 335, 345, 355, 365, 385, and cumulative G.P.A. of 2.5 or higher. Graded Pass/No Pass.*

472 Professional Internship

16 credits. Student teaching at the K-6 level. *Prerequisites: Education 325, 335, 345, 355, 365, 385, and cumulative G.P.A. of 2.5 or higher. Graded Pass/No Pass.*

473 Professional Internship

14 credits. Student teaching at the 7-12 level. *Prerequisite: Education 305 and cumulative G.P.A. of 2.5 or higher. Corequisite: Education 415. Graded Pass/No Pass.*

474 Professional Internship

17 credits. Student teaching for a minimum of ten weeks in a K-6 setting and for six weeks in a pre-K setting. *Prerequisites: Education 315, 320, 325, 335, 345, 355, 365, 385, and cumulative G.P.A. of 2.5 or higher. Graded Pass/No Pass.*

480-489 Independent Study

Variable credit. Upon the initiative of the student, a program of study may be organized with a faculty member on a topic of mutual interest. *Prerequisite: Permission of Department Chair and Independent Study Committee.*

Engineering

See Department of Physics, page 59.

Department of English

Professors Campbell (*Chair*), Dwyer, Sarracino
Associate Professors Martin, Rohrkemper, Mead
(*Director of Professional Writing Program*)
Assistant Professors Downing, Frawley,
Lecturer: O'Donnell (*Supervisor, English Secondary Education Program*)

Bachelor of Arts

The Department of English offers an education which stresses both the knowledge and effective use of language, and an understanding and appreciation of our literary heritage. Excellence in both writing and literary studies is the fundamental aim of the Core Program and of the rigorous and comprehensive tracks which prepare students for graduate training in English or professions such as law and medicine, for professional writing careers in a variety of fields, or for teaching at the secondary level of education.

The *literature track* requires English 209, 241 or 242, 301, and 394; three 200 level English courses, with middle digit 2 (one of which must be prior to 1800); three 300 level English courses, one with middle digit 1, and two with middle digit 9 (one of which must be prior to 1800); one English course with the middle digit 8; three English electives above the 100 level; and Modern Language 112 or higher.

The *professional writing track* requires English 185, 209, 241 or 242, 302, and 393; three 200 level courses, two with the middle digit 2 (one of which must be prior to 1800) and one from 282, 283, or 284; two 300 level English courses, one with middle digit 1, and one with middle digit 9; one English elective above the 100 level; two courses from English 382, 384, or 385; one professional writing elective from English 281, 282, 283, 284, 381, 382, 385, or 473; Computer Science 120; and Modern Language 112 or higher.

The *secondary education track* requires English 185, 209, 241, 242, 301, 302, 306, and 332; two 200 level English courses with middle digit 2 (one of which must be prior to 1800); one course from English 381, 384, or 385; one 300 level English course with middle digit 1; one English elective above the 100-level; Modern Language 112 or higher; and Education 205, 230, 305, 415, and 473.

English majors in all tracks must successfully complete a Modern Language course at the 112 level, or higher, if so placed.

An English major may not use any English 100-level course except English 100 or English 150 to satisfy core or major requirements.

The Department of English offers *minors in literature and professional writing*. Each minor requires 24 credits distributed as follows:

Literature – English 209 and either 241 or 242; two 200 level English courses with middle digit 2 (one of which must be prior to 1800); three 300 level English courses, one with middle digit 1, and two with middle digit 9 (one of which must be prior to 1800); and one English elective.

Professional Writing – English 185, 209, and 241 or 242; two 200 level English courses, one with middle digit 2, and one with middle digit 8; three 300 level English courses, one with middle digit 8, and one with middle digit 9; and one English elective with middle digit 8.

The Department of English participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

011 Fundamentals of Composition

3 credits. An introduction to various forms of academic prose, with an emphasis on developing students' fluency and voice in writing. *Credits are not applicable to the 125 required for graduation.* Staff.

100* Writing and Language

3 credits. **(Power of Language)** A writing course focusing on writing as a process of discovery of ideas, drafting, revision, and editing. Students read, write, and speak about a variety of aspects of the power of language. Assignments may include but are not limited to linguistic analysis, history of the language, and the analysis of language in and out of contexts. Topics include writing and literature, writing and persuasion, and writing and society. Staff. *Note: A student may be placed in English 100 or 150. Those assigned to English 100 must complete this course to satisfy the Power of Learning core and may not enroll in English 150. A student placed in English 150 may not enroll in English 100.*

110* Literature: Expressive Form

3 credits. **(Creative Expression)** A study of how different forms of literature produce different aesthetic experiences and responses. The course will focus on a specific theme such as war, the self, the family, or contemporary culture to make comparisons between genres more obvious. Poetry, drama, short story, essay, film, and the novel are possible genres for consideration. Staff.

112* Introduction to Poetry

3 credits. **(Cultural Heritage)** A study of the English and American lyric from Old and Middle English through the Renaissance, 18th, 19th centuries, to the present day. *Note: This course was previously listed as English 115, The Lyric Tradition. Students who completed and have credit for English 115 may not enroll in English 112.* Staff.

113* Introduction to Drama

3 credits. **(Values and Choice)** The analysis of character and motive in 8-10 plays. A psychological approach will emphasize how actions and words reveal personality. Staff.

114* Introduction to Fiction

3 credits. **(Values and Choice)** Identifying values and making choices through a study of fictional narratives: short stories, novelettes, and novels. Staff.

116* Film as Literature

3 credits. **(Creative Expression)** An introduction to film as an art form with particular attention to the discourse of film: how film "speaks" to us; how we speak about film. Staff.

121* Money and Status in American Literature

3 credits. **(Values and Choice)** An examination of Max Weber's analysis of the "Protestant Work Ethic," and other political, philosophical and historical underpinnings of wealth in America, including earliest visions of America as a new Eden, an abundant paradise. Students read 10 important works, and keep journals to use in discussion groups and as a source for essays. Prof. Sarracino.

135* Shakespeare Through Performance

3 credits. **(Creative Expression)** Students gain a deep critical and imaginative understanding of Shakespeare's plays and a knowledge of the Elizabethan theatre and its stage conventions by reinforcing textual analysis with informal performance of scenes from several key works. Staff.

150* Advanced Writing and Language

3 credits. **(Power of Language)** A writing course designed to explore the writing process while studying the history of the English language, its past and present uses and powers. Students will be writing, reading, and speaking about a variety of aspects of the history and power of language. Assignments may include but are not limited to linguistic analysis, history of the language, de-constructive techniques, and the analysis of language in and out of contexts. *Note: A student may be placed in English 100 or 150. Those assigned to English 100 must complete this course to satisfy the Power of Learning core and may not enroll in English 150. A student placed in English 150 may not enroll in English 100.* Staff.

185 Introduction to Professional Writing

3 credits. The varieties of discourse and research in many professional areas and including instruction in basic terminology and graphic techniques. *Prerequisites: Power of Language requirement, Computer*

209 Introduction to English Studies

3 credits. The study of English as an academic discipline with emphasis on close reading and theories of textual analysis, library research on literary, pedagogical, and rhetorical topics, and terminology of language and literary analysis, among other primary considerations. *Required of English majors and recommended for those considering the English major.* Staff.

212* Forms of the Quest

3 credits. **(Creative Expression)** A study of the literature of the quest, with an emphasis on literary form as a product of individual creativity and collective culture. The class will focus on lyric forms, narrative forms, tragic forms, and comic forms in works such as Homer's *Odyssey*, Virgil's *Aeneid*, and Dante's *Divine Comedy*. *Note: This course does not fulfill the 31-(genre) requirement for English majors or minors.* Staff.

221* The Literature of Medieval England

3 credits. **(Cultural Heritage)** A study of the literature and culture of Medieval England, with an emphasis on sexual roles, philosophy and cosmology, historical events, and the literary genres of this period in English history. *Course fulfills the pre-1800 requirement.* Prof. Martin.

222* Literature of the English Renaissance

3 credits. **(Cultural Heritage)** A study of the literature and culture of the Renaissance, with an emphasis on sexual roles, philosophy and cosmology, political values, and the literary forms of this yeasty time of rebirth and new knowledge. *Note: Students who have credit for English 320 or 322 may not enroll in this course. Course fulfills the pre-1800 requirement.* Prof. Martin.

223* English Neo-Classicism

3 credits. **(Cultural Heritage)** A study of the prose and poetry from the period of 1600 to 1800 with an emphasis on Dryden, Pope, Swift, Sterne, and Johnson. *Note: Students who have credit for English 323 may not enroll in this course. Course fulfills the pre-1800 requirement.* Prof. Dwyer.

224* English Romanticism

3 credits. **(Cultural Heritage)** A study of the verse and prose of Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats, developing various concepts of Romanticism. Prof. Dwyer.

225* Victorian British Literature

3 credits. **(Cultural Heritage)** A study of selected prose and poetry of the Victorian Age, emphasizing the relationship of the literary text to social and cultural conditions. Authors will include Tennyson, Dickens, Carlyle, the Brownings, and Hardy. *Note: Students who have credit for English 328 may not enroll in this course.* Prof. Frawley.

226* Twentieth Century British Literature

3 credits. **(Cultural Heritage)** An examination of British literary, cultural, and social thought in the twentieth century as evidenced in a number of literary works by authors from England and other nations of the British Commonwealth. *Note: Students who have credit for English 329 may not enroll in this course.* Profs. Frawley, Rohrkemper.

241* American Literature I

3 credits. **(Cultural Heritage)** This course will assume general familiarity with American history and literature and build upon that basic knowledge to explore themes in American literature from the time of the Puritan settlers through the later nineteenth century, focusing on the Civil War. *Note: Students who have credit for English 340 may not enroll in this course.* Prof. Sarracino.

242* American Literature II

3 credits. **(Cultural Heritage)** An examination of American literary, cultural, and social thought from the late nineteenth century to the present, as evidenced in a number of representative texts. *Note: Students who have credit for English 341 or 342 may not enroll in this course.* Prof. Rohrkemper.

245* Growing Up in America

3 credits. **(Values and Choice)** The main purpose of this course is to

allow students, through a careful reading of important American novels and biographies, better to understand the distinct experiences that comprise growing up in America. In this course we will explore deeply both the uniqueness of experiences of growing up in America, and also the universality of shared problems, crises, challenges, and joys. Staff.

246* Minority Voices in American Literature

3 credits. **(Cultural Heritage)** A study of major works of American literature by writers who traditionally have been marginalized on the basis of race, class, and gender. Staff.

251* The Literature of Laughter

3 credits. **(Creative Expression)** A study of works from a variety of literary genres which create and comment on humor. Students will read a fable, short stories, novels, light verse, a play, and humorous essays, as well as essays which deal with the theories of humor. Comic forms represented include humorous social commentary, satire, and black comedy. Works to be read include "My Life and Hard Times," "A Modest Proposal," "Praise of Folly," and *Catch-22*. *Prerequisite: Completion of Power of Language requirement.* Staff.

281* Writing and Analyzing the Short Story

3 credits. **(Creative Expression)** Students will analyze classic short stories using the language and concepts of literary criticism through discussion, oral presentations, and a major research paper. Emulating classic literary models, they will write original short stories, revising according to detailed critiques by their peers and the instructor. *Prerequisite: Completion of Power of Language requirement.* Staff.

282 Writing in the Health Professions

3 credits. Students will read and analyze the discourse common to the medical professions in addition to literature about the profession. Students will practice the forms of medical writing, culminating in a research project. *Prerequisite: Permission of instructor. Professional Writing majors must also have completed English 185.* Spring semester, alternate years. Prof. Mead.

283 Writing for Government and the Judicial System

3 credits. A survey of the types of writing common in government, politics, and law. Students will practice basic legal analysis, statistical analysis, persuasion, and more advanced forms of legal writing such as the appellate brief. **Highly recommended to pre-law and political science majors.** *Prerequisite: Permission of instructor. Professional Writing majors must also have completed English 185.* Prof. Mead.

284 Writing in the Social Sciences

3 credits. Students will analyze articles, books, reviews, and research in the fields of psychology, political science, anthropology, sociology, history, and economics. In addition, students will practice writing a variety of research forms, including the observation, experiment, survey/interview, etc. *Prerequisite: Professional Writing majors must have completed English 185.* Alternate years. Prof. Mead.

301 History of the English Language

3 credits. A study of the evolution of the English language from its Indo-European and, specifically Germanic, origins into its modern form by observation of changes in vocabulary, grammar, and pronunciation. These changes are examined, primarily, in selected readings from Old, Middle, and Renaissance English literature. Fall semester, alternate years. Prof. Martin.

302 Grammar and Linguistics

3 credits. A summary of traditional, transformational, and transactional grammars; and structural, social, and psycholinguistics, including biological and environmental influences on language acquisition. Spring semester, alternate years. Prof. Mead.

305 Methods Seminar in Teaching Literature

4 credits. Approaches to teaching literature at the secondary level, practical application of various methodologies through internships in local middle or high schools. *Prerequisite to professional semester.* Prof. O'Donnell.

306 Methods Seminar in Teaching Language and Composition

3 credits. The teaching of English grammar and usage, with reference to teaching composition at the secondary school level, practical application of various methodologies through teaching internships in the classroom and/or the Learning Center. *Prerequisite to professional semester.* Prof. O'Donnell.

311 Genre Studies

3 credits. A study of a particular genre such as autobiography or the non-fiction novel. Representative works will be discussed. *Since the course may vary in focus, it may be repeated for credit, providing the content is not duplicated.* Staff.

313 Studies in Drama

3 credits. A study of drama considering such issues as links between the visual and verbal representation of meaning, and the development of the concepts of comedy and tragedy. *Since the course may vary in focus from early drama to modern, it may be repeated for credit, providing the content is not duplicated.* Profs. Campbell, Martin.

317 Studies in the Novel

3 credits. A study of the novel, including the development of the genre and its literary history in particular periods. Representative works will be discussed. *Since the course may vary in focus from early forms to modern, it may be repeated for credit, providing the content is not duplicated.* Fall semester. Staff.

318 Studies in Poetry

3 credits. A study of at least three major poets from one or more periods of American or English literature. Staff.

332 Shakespeare

3 credits. A study of representative works of Shakespeare. Spring semester. Profs. Campbell, Martin.

352 The Fantastic in Literature

3 credits. A study of major works of fantasy (*Alice in Wonderland*, *The Hobbit*, *The Golden Key*, and others) focusing on thematic significance of "the journey" and attempting to define "the fantastic" with the kind of precision and clarity directed toward "the tragic" or "the comic." Fall semester, alternate years. Prof. Sarracino.

357 Women and Literature

3 credits. A study of the effects on women writers and readers of a male dominated literary tradition. Alternate years. Prof. Frawley.

371-379 Special Topics

3 credits. Courses involving specific subjects chosen in response to student/faculty interest. Staff.

381 Creative Writing (Poetry, Prose)

3 credits. The writing of original poetry or prose. Graded pass/no pass. *Prerequisite: permission of instructor.* Prof. Sarracino.

382 Technical Writing

3 credits. A course emphasizing clarity and precision in writing and including instruction in oral and graphic presentation of technical and scientific information. *Prerequisite: Professional Writing majors must have completed English 185 and one 200 level Professional Writing course.* Prof. Mead.

384 Advanced Composition and Editing

3 credits. A laboratory/lecture course in advanced writing and professional editing. *Prerequisite: English 185 and permission of instructor, Professional Writing majors must also have completed a 200 level Professional Writing course.* Prof. Mead.

385 Writing for Publication

3 credits. Advanced study of the writing of non-fiction copy editing and of techniques for promoting one's own manuscripts. *Prerequisite: Permission of instructor. Professional Writing majors must have completed English 185 and a 200 level Professional Writing course.* Staff.

391 Chaucer

3 credits. A study of *The Canterbury Tales* and shorter works, with a

focus on the art of the tales and on cultural issues such as the place of women in medieval society. *Note: Students who already have credit for English 331 may not enroll in this course. Course fulfills the pre-1800 requirement.* Prof. Martin.

393 Seminar in History and Theory of Rhetoric and Composition

3 credits. A consideration of a variety of topics: history of rhetoric, linguistics, and modern heuristics in teaching writing. *Prerequisites: Professional Writing concentration, English 185, and one 200 level Professional Writing course.* Spring semesters, alternate years. Prof. Mead.

394 Senior Seminar in Literary Theory

3 credits. A seminar for literature majors on the history of literary theory and criticism. *Prerequisites: English Literature concentration, or permission of the instructor.* Fall semester, alternate years. Prof. Dwyer.

395 The Renaissance Epic: Spenser and Milton

3 credits. A study of representative works by Spenser and Milton, with emphasis on issues of Renaissance culture such as religion, politics, and gender. *Note: Students who have credit for English 333 may not enroll in this course. Course fulfills the pre-1800 requirement.* Prof. Martin.

397 Major Authors

3 credits. A study of the writings of one or more American or British author(s) such as Blake/Pope, Faulkner/O'Neill, Austen/Eliot, Hall/Bly/Kinnell. *Since the authors studied may vary from term to term, the course may be repeated for credit, provided the content is not duplicated.* Staff.

470-479 Internships

1-3 credits. On-campus internships may be requested in the student's sophomore, junior, or senior year. Off-campus internships are for students proven competent in on-campus internships or judged as having special aptitudes for the specific internship. *Applications for internships in the Department of English are due March 15 for summer and fall semesters, and November 15 for spring semester.* Prof. Mead.

480-489 Independent Studies in English

2-3 credits. A course designed to give the individual student the opportunity to pursue work in an area of major interest under the guidance of a member of the Department of English. *Prerequisite: Approval of Department Chair and the Independent Study Committee.* Staff.

Education 305 Practicum in Secondary Education

4 credits. The exploration and application of various teaching styles and strategies in the teaching of literature in the secondary-school English classroom; in-school observations and internships as paraprofessional experience. *Prerequisite: Education 230.* Prof. O'Donnell.

Department of Fine and Performing Arts

Professor Harrison (Chair),
Associate Professors Friedly, Palmquist, Severeid, Stites
Assistant Professors Haines, P. Ricci, Schellenberg,
Tower
Lecturer Ronning

Bachelor of Arts; Bachelor of Science

The department offers three majors which lead to the degree of Bachelor of Science in Music Education, Bachelor of Science in Music Therapy, or Bachelor of Arts in Music. No majors are offered in the areas of art, dance, or theater. Minors are offered in visual art,

music, and theater. Elizabethtown College is an accredited institutional member of the National Association of Schools of Music.

The Department of Fine and Performing Arts participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

Visual Arts

The academic and the practical courses in the visual arts program aim to refine students' creative potential, expand their judgment of the visual arts, and discern the contrasts and relationships among the arts of our Western culture and those of non-Western traditions.

Minor in Visual Arts. The minor in visual arts requires Art 105, 106 or 220, 155, 203, and six hours of electives in visual arts courses. Communications 215 may be one of the elective courses.

105* Drawing I

3 credits. **(Creative Expression)** Studio practice in basic drawing media for sketching and rendering both live and inanimate subjects. Profs. Friedly, Schellenberg.

106* Ceramics I

3 credits. **(Creative Expression)** Introduction to ceramic design and history, with emphasis on fundamental construction, decorating, glazing and firing techniques, and operation of the machinery of the medium. Prof. Friedly.

110 Drawing II

3 credits. An intermediate-level course that stresses further conceptual, pictorial, and technical development beyond Drawing I, with an emphasis on personal theme and content. *Prerequisite:* Art 105 or permission of the instructor. Profs. Friedly, Schellenberg.

155* Introduction to Art

3 credits. **(Cultural Heritage)** An overview course to introduce students to the range and theories of European/American painting and to acquaint them with ramifications social, political, aesthetic, and economic revealed by the arts; with further emphasis on modes of art deriving from other than our historic Western impulses. Prof. P. Ricci

203* Twentieth Century American Art

3 credits. **(Cultural Heritage)** An illustrated, lecture course in present-century developments in American painting, sculpture, architecture, and the lesser arts. Prof. Friedly.

205 Painting

3 credits. Studio easel painting in opaque media, with stress on pictorial organization and application of color theories. *Prerequisite:* Art 105 or permission of the instructor. Prof. Schellenberg.

206 Ceramics II

3 credits. An intermediate-level course with emphasis on developing and refining studio techniques and integration of form and idea. *Prerequisite:* Art 106. Prof. Friedly.

220* Sculpture

3 credits. **(Creative Expression)** An exploration in the three-dimensional medium of traditional and contemporary ideas, basic problems in design, and instruction in the use of the sculptor's materials and techniques. Prof. Friedly.

305 Painting II

3 credits. An intermediate level course with emphasis on developing

and refining technique and concept. A continuation of the formal issues surrounding color and composition presented in Art 205. Not offered 1996-97. *Prerequisite:* Art 205. Prof. Schellenberg.

320 Sculpture II

3 credits. A continuation of Art220, with further exploration of possible three-dimensional mediums and development of the methods used for traditional, modern and contemporary sculpture. Not offered 1996-97. *Prerequisite:* Art 220. Prof. Friedly.

351 Printmaking

3 credits. Practice in the methods of relief, intaglio, and silk screen printing, and instruction in the use of the printer's machinery. *Prerequisite:* Art 105 or permission of the instructor. Prof. Friedly.

Dance

DA 101* Interpretive Movement

1 credit. **(Physical Well Being)** Designed to build the body with isolation, flexibility, and rhythmic exercises. Offers problem solving exercises to aid the student to think logically, communicate clearly, to work and share ideas with people, and to develop a sensitivity and body awareness which will lend itself to creative activity. Prof. Farenwald. Graded Pass/No Pass.

DA 102* Introduction to Ballet

1 credit. **(Physical Well Being)** Emphasizes basic positions, vocabulary (French), and body placement. Beginning barre and floor exercises included. Graded Pass/No Pass.

Music

The music courses are designed to develop student comprehension and appreciation of music as a cultural force in the past and present. Music majors are prepared for professional careers in education, therapy, and studio teaching, as well as graduate study.

A copy of departmental graduation requirements for music majors (in addition to those listed below), including proficiency requirements in piano and voice, and recital participation and attendance, may be obtained at the department office.

The department has adopted requirements for junior standing for music majors. A copy of these requirements is available in the department office.

The music education major requires Music 100, 101, 102, 103, 104, 150, 201, 202, 203, 204, 205, 231, 234, 237, 238, 301, 311, 312, 321, 322, 343, 344, 440, 441, 442, 443, 471, a minimum of twelve credits of applied music instruction, a minimum of seven credits in ensemble participation, a senior recital, and Education 205.

The music education major is approved by the Pennsylvania Department of Education and the National Association of Schools of Music.

The music therapy major requires Music 100, 101, 102, 103, 104, 141, 150, 151, 201, 202, 203, 204, 205, 234, 252, 301, 321, 353, 353L, 354, 440, 441, 442, 443, 455, 455L, 456, 456L, 473, 474, 475, and 479; a minimum of twelve credits in applied music instruction; a senior recital; and a minimum of six credits in ensemble. Also required are Biology 201, Psychology 221 and 334. Specific courses to

be included in the student's Core Program are Biology 105 or 111, Mathematics 151, and Psychology 105. A six-month internship in an approved clinical facility is required for the music therapy degree and is taken after the completion of the four-year music therapy program.

The music therapy program is approved by the National Association for Music Therapy and the National Association of Schools of Music.

In order to graduate, a music therapy or music education major must maintain the following standards:

(1) *A music therapy major* must earn a grade of C- or better in all music and music therapy courses. *A music education major* must earn a grade of C- or better in all music and music education courses, and in Education 205.

(2) *Music therapy majors* must satisfy the standards and requirements in all field work education, including clinical practicums and the internship. *Music education majors* must satisfy the standards and requirements of the educational practicum and student teaching experiences.

The Bachelor of Arts in Music normally requires Music 100, 101, 102, 103, 104, 201, 202, 203, 204, 205, 321, 322, 419, 440, 441, 442, 443, twelve credits in applied music, a senior recital, and three hours of ensemble credit. The student must also complete Modern Language 112 (or a higher course if so placed by testing). The music requirements of the bachelor of arts degree are flexible and are determined by the needs and interests of each student. Under the guidance of a departmental advisor, a bachelor of arts music major works out a program which includes at least 40 credits of music courses.

The minor in music provides students with opportunities to acquire and develop skills in music theory, music performance, music history and literature, and allows each student to pursue his or her personal musical interests.

The minor in music requires Music 101-103; 102-104 or 305; 105; 441 or 442 or 443; four credits of instruction on one instrument or in voice, with registration in Music 100 (Repertoire Class) in each of the same semesters; minimum of two credits of music ensemble participation; and a minimum of three credits of music electives.

A student electing to minor in music must consult with the department chair who assigns a music faculty member to assist the student's academic advisor as necessary.

The Department has a Preparatory Division which offers instruction to pre-college students, adults, and college students who desire to take instruction without credit.

Instruction is available from departmental faculty and other qualified teachers. Interested persons should contact Prof. Debra Ronning, director of the Preparatory Division.

100 Repertoire Class

0 credit. This class provides performance opportunities for students in applied music. It meets for 1 hour each week and is required for all music majors and minors who are enrolled for applied music instruction.

101 Music Theory

2 credits. Fundamentals of music theory, harmony and form with emphasis on scales, keys, modes, notation, clefs, diatonic triads and non-harmonic tones. Fall semester. Prof. Grubb.

102 Music Theory

2 credits. A continuation of Music 101, with an introduction to modulation, seventh chords, borrowed chords, secondary dominant and leading tone chords. Includes binary and ternary forms. *Prerequisites:* Music 101, 103, or permission of instructor. Spring semester. Prof. Grubb.

103 Fundamentals of Sight Singing and Training

1 credit. Music reading and ear training according to the Kodaly concept using syllables based on moveable "Do," kinesthetically reinforced by hand signs. Study and drill in rhythm will include the use of the basic beat patterns. Linear dictation including rhythmic elements. Aural skills related to theoretical analytical materials covered in Music 101.

Corequisite: Music 101. Fall semester. Prof. Grubb.

104 Sight Singing and Ear Training

1 credit. A continuation of Music 103 including chromaticism, modulation, modes and more difficult rhythms and intervals, C clefs. *Prerequisite:* Music 103 or permission of instructor. Spring semester. Prof. Grubb.

105* Introduction to Music Literature

3 credits. **(Cultural Heritage)** Introduction to the music of the Western world, major composers, and selected famous compositions, with emphasis on listening to music from the Baroque era to the present. Prof. Stites.

106* Interpretation of Music

1 credit. **(Creative Expression)** A course for non-music majors who can read music and who wish to participate in a musical ensemble or continue private lessons. It is designed to supplement the musical experience by developing a deeper understanding of musical interpretation, as distinct from technique. In the lectures which discuss particular aspects of interpretation, examples from those works being prepared for performance in the ensembles and lessons will be used. This course fulfills the AU core requirement in "Creative Expression" when coupled with enrollment in an ensemble or private instruction for both semesters the same academic year in which it is taken. One 50-minute class meeting per week. Spring semester.

111 Voice Class

1 credit. The fundamentals of breath control, tone production, and development of vocal technique. Open to all students. Profs. Mekeel, Stites.

115* Music Fundamentals at the Keyboard

3 credits. **(Creative Expression)** This course provides the student with basic skills in producing and reading music at the keyboard. Attention is given to ear training, basic keyboard technique, and musicianship, as well as to sight reading. The course utilizes the department's digital piano laboratory. Daily practice is required. *Not offered 1996-97.*

117 Piano Class

1 credit. Basic piano skills. Open to all music majors; required of those whose first applied instrument is not piano. *Prerequisite:* music major. *The department reserves the right to offer this course as private lessons if fewer than 5 students are enrolled.* Prof. Ronning.

119 Guitar Class

1 credit. An introductory course emphasizing studies in basic chords and note reading. Course also surveys various guitar styles, the performers, music, and types of guitars. *The department reserves the right to offer this course as private lessons if fewer than 5 students are enrolled.* Fall semester. Prof. Cullen.

120 Guitar Class

1 credit. A continuation of Music 119 with emphasis on bar chords, accompaniment patterns, and note reading. Includes an introduction to classical guitar technique, history, performers, and classical literature. *Prerequisite: Music 119 or permission of instructor. The department reserves the right to offer this course as private lessons if fewer than 5 students are enrolled.* Spring semester. Prof. Cullen.

141 Recreational Music

3 credits. Survey of recreational music resources and activities, with emphasis on the development and application of leadership and music performance skills in recreational and therapeutic settings. *Prerequisite: music major or permission of instructor.* Spring semester. Prof. Haines.

150 Professional Seminar

0 credit. A weekly seminar for music majors enrolled in professional degree programs. Guest speakers, faculty, and students present topics of mutual interest, including career development, application of music skills, and professional service. Required of music therapy and music education majors each semester. Staff.

151 Introduction to Music Therapy

2 credits. A survey of music therapy through lecture-demonstration sessions, readings, student reports, and field trips. Emphasis on the potentials of music therapy with a variety of populations. *Prerequisite: music major or permission of instructor.* Fall semester. Prof. Haines.

201 Advanced Music Theory

2 credits. Advanced harmony including ninth, eleventh, and thirteenth chords, chromatic harmony and form and analysis. *Prerequisite: Music 102, 104.* Fall semester. Prof. Haines.

202 Advanced Music Theory

2 credits. A continuation of Music 201 with emphasis on late 19th- and 20th-century harmonic practice. Includes composition using 20th-century techniques. *Prerequisite: Music 201, 203.* Spring semester. Prof. Haines.

203 Advanced Sight Singing and Ear Training

1 credit. Continued emphasis on reading and dictation skills with concentration on modulation and chromaticism using some 20th-century material. C clefs. *Corequisite: Music 201.* Fall semester. Prof. Grubb.

204 Advanced Sight Singing and Ear Training

1 credit. A continuation of Music 203 with concentration on reading atonal melodies and 20th-century material. *Corequisite: Music 202.* Spring semester. Prof. Grubb.

205* Music of Non-Western Cultures

3 credits. (Foreign Cultures and International Studies) Contemporary music indigenous to eight non-Western geographic regions of the world are studied and compared in terms of tonal and rhythmic attributes, and as an approach to promoting socio-cultural awareness. Prof. Palmquist.

231 Brass Class

1 credit. Methods of tone production, fingerings or positions, care and repair, and methods and materials for teaching trumpet or cornet, French horn, baritone, trombone, and tuba. *The department reserves the right to offer this course as private lessons if fewer than 5 students are enrolled.* Spring semester. Profs. Moore, G. Moore.

234 Percussion Class

1 credit. Methods of tone production, care and repair, and methods and materials for teaching snare drum, cymbals, timpani, and other

percussion instruments. *The department reserves the right to offer this course as private lessons if fewer than 5 students are enrolled.* Fall semester. Prof. Luckenbill.

235 History of Jazz

3 credits. Exploration of the origins and development of jazz as an American art form. Offered on demand.

237 Elementary String Class

1 credit. Method of tone production, fingerings, care and repair, and methods and materials for teaching violin, and viola in individual and class settings. *The department reserves the right to offer this course as private lessons if fewer than 5 students are enrolled.* Fall semester. Prof. Leithmann.

238 Intermediate String Class

1 credit. Method of tone production, fingerings, care and repair, and methods and materials for teaching cello and double bass in individual and class settings. *Prerequisite: Music 237. The department reserves the right to offer this course as private lessons if fewer than 5 students are enrolled.* Spring semester. Prof. Zurfluh.

242 Mozart and Eighteenth-Century Classicism

3 credits. (Cultural Heritage) Study of a symphony, a sonata, a string quartet, several concerti, lieder, an opera, masses and other sacred choral works by Mozart provides understanding of how the composer exemplified eighteenth-century classicism in his music. Prof. Stites.

252 Psychology of Music

2 credits. Study of acoustics and the psychology of music as they relate to life and the music professions. An examination of the events and circumstances that occur in music and influence it. *Prerequisite: Music major or permission of instructor.* Spring semester. Staff.

290 Composition

1 credit. Development of skills in composing. Emphasis on creation of original works for a variety of media with performance as final product. Can be taken repeatedly for credit. *Prerequisite: Music 201 and POI.* For enrollment beyond two terms, Music 419 is required. Prof. Haines.

301 Keyboard Harmony

2 credits. A course designed to provide functional piano skills in harmonizing melodies and improvising at the keyboard. *Prerequisites: Music 202-204, 269.* Fall semester. Prof. Ronning.

305 Teaching Music in the Elementary Classroom

3 credits. Provides students opportunities to develop skills in singing, song leading, listening, creating, and performing. Emphasizes applying knowledge and skills to provide musical experiences for young children and work with music specialists. Includes observation of music instruction and performance. Prof. Palmquist.

311 Music in the Elementary School

3 credits. Study of techniques, methods and materials used in teaching elementary music classes. Emphasizes performance, observation, assessment, and organization through observation, teaching, and participation in class music activities. *Prerequisite: Music major or permission of instructor.* Fall semester. Prof. Palmquist.

312 Music in the Secondary School

3 credits. Methods and materials for secondary general music classes and performance groups, with special concentration on the junior high school general music class, adolescent voice problems, and the successful organization and direction of choral and instrumental performing groups. Observations and laboratory experiences included. *Prerequisite: Music major or permission of the instructor.* Spring semester.

321 Conducting Fundamentals and Instrumental Techniques

3 credits. Instruction in the fundamentals of conducting. Topics include conducting techniques, instrumental methods and problems, score reading, and interpretation. *Prerequisites: Music 202 and 204 or permission of instructor.* Fall semester. Prof. Tower.

322 Choral Conducting

3 credits. A continuation of Music 321 with an emphasis on choral techniques. *Prerequisite:* Music 321. Spring semester. Prof. Stites.

337 Advanced String Class

1 credit. A continuation of Music 238 providing in-depth study of violin, viola, cello, or string bass, and a study of string ensemble techniques, methods, and literature. *Prerequisite:* Music 238. The department reserves the right to offer this course as private lessons if fewer than 5 students are enrolled. Fall semester. Staff.

343 Woodwind Class

1 credit. Methods of tone production, fingerings, maintenance, care and repair, and methods and materials for teaching flute, oboe, clarinet, bassoon, and saxophone. *The department reserves the right to offer this course as private lessons if fewer than 5 students are enrolled.* Fall semester. Prof. Tower.

344 Woodwind Class

1 credit. A continuation of Music 343. *Prerequisite:* Music 343. The department reserves the right to offer this course as private lessons if fewer than 5 students are enrolled. Spring semester. Prof. Tower.

353 Music Therapy Techniques

2 credits. The study of behavioral and music therapy techniques used in clinical practice, with emphasis on observation, assessment, program implementation, and accountability. *Prerequisite:* Music 252. Fall semester. Prof. Haines.

353L Music Therapy Techniques Laboratory

1 credit.

354 Music Research Methods

2 credits. Introduction to music research. Emphasis on reading, evaluating and applying research findings and on using research techniques in music therapy and music education. Includes the collection, codification, interpretation, and presentation of data. *Prerequisite:* Psychology 105. Spring semester. Prof. Palmquist.

371-379 Special Topics

Variable credit. This sequence of courses permits the Department to offer courses to any group of students who express an interest in a particular area of study that is not a regular part of the curriculum. Staff.

419 Counterpoint

2 credits. A study of contrapuntal techniques of the sixteenth through twentieth centuries through representative composers and original compositions. *Prerequisites or corequisites:* Music 202 and 204. Spring semester. Prof. Haines.

431 Piano Methods and Materials

2 credits. Modern methods in teaching piano to children, youth, and adults. Course includes a survey of teaching materials for various stages of progress, teaching demonstrations, and experience. *Credit for Music 431 is given only upon completion of Music 432. Prerequisites:* two semesters of Music 269. Not offered 1996-97.

432 Piano Methods and Materials

2 credits. A continuation of Music 431. *Prerequisite:* Music 431. Spring semester. Not offered 1996-97.

440 Instrumental Arranging

2 credits. Arranging music for large and small ensembles; class performance of student works is combined with a study of the characteristics of each standard instrument and instrumental group. *Prerequisites:* Music 202, 204. Fall semester. Prof. Haines.

441 Music History and Literature I

3 credits. A chronological study of the technical, stylistic, and social/historical developments related to Western music and musicians from antiquity until about the year 1700. Examples of great music will be ever present. *Prerequisites:* Music 202 and 204 or permission of instructor. Not offered 1996-97. Prof. Harrison.

442 Music History and Literature II

3 credits. A chronological study of the technical, stylistic, and social/historical developments related to Western music and musicians from around the year 1700 through the 19th century. Examples of great music will be ever present. *Prerequisites:* Music 202 and 204 or permission of instructor. Fall semester. Prof. Harrison.

443 Music History and Literature III

3 credits. A chronological study of the technical, stylistic, and social/historical developments related to Western music and musicians of the 20th century. Examples of great music will be ever present. *Prerequisites:* Music 202 and 204 or permission of instructor. Spring semester. Prof. Harrison.

455 Music Therapy I: Principles

2 credits. A survey of literature on the nature and principles of music therapy, including theory, practice and research. The application of these principles according to specific client populations and preparation for clinical internship will be emphasized. *Prerequisites:* Music 252, 353, 354; or permission of instructor. Fall semester.

455L Music Therapy I Laboratory

1 credit.

456 Music Therapy II: Practices

2 credits. The study of philosophies and practices of disciplines as related to music therapy and the role of the music therapist as a treatment team member. Emphasis will be on the integration of the knowledge and skills associated with the practice of music therapy and issues related to professional employment. *Prerequisite:* Music 455 or permission of instructor. Spring semester.

456L Music Therapy II Laboratory

1 credit.

471 Professional Internship in Music Education

12 credits. Teaching experience and observation in elementary and secondary music classes. Instrumental and vocal emphases vary with student strengths and needs. *Prerequisite:* permission of department. Graded Pass/No Pass. Prof. Palmquist.

473-75 Practical Experiences I-III: Music Therapy

1 credit each. Supervised field experiences (observation and participation) in an approved clinical facility. A minimum of thirty hours for each clinical experience is required. Music therapy majors only. *Prerequisites:* Music 141, 151. Staff.

479 Professional Internship in Music Therapy

0 credit. Six months of supervised practical experience with a registered music therapist in an NAMT approved facility. Taken only after completion of all other music therapy degree requirements. *Prerequisite:* permission of instructor. Graded Pass/No Pass. Prof. Haines.

481-489 Independent Study

Variable credit. The purpose of this course is to offer individual students opportunities for musical composition, arranging, performance or research under faculty supervision. *Prerequisite:* Approval of Department Chair and Independent Study Committee. Staff.

Applied Music and Ensembles

Students who register for applied music for credit must meet minimum standards established by the department and should contact the department office for a list of standards for each applied area. Students who have not attained the level necessary for credit may study through the Preparatory Division. Students in applied music advance as rapidly as their abilities permit. They must study technical exercises and literature from various musical periods and styles.

Students may register with or without credit for the established music ensembles and for other ensembles

organized under faculty supervision; ensemble registration for credit may be repeated. All students must meet the standards for attendance at rehearsals and public performances established by the faculty directors. Ensembles are graded Pass/No Pass.

Music 106 must be taken with ensembles or private lessons to fulfill the Creative Expression requirement in the Core curriculum. See the description of Music 106.

268* Voice

1 credit. Profs. Knauer, Mekeel, Stites.

269* Piano

1 credit. Music therapy and music education majors whose principal instrument is not piano or organ must enroll in Music 117 before Music 269. Profs. Harrison, Ronning, Schroeder, Whitten.

270* Organ

1 credit.

271* Violin

1 credit. Prof. Rathnam.

272* Viola

1 credit. Prof. Rathnam.

273* Cello

1 credit. Prof. Zurfluh.

274* String Bass

1 credit. Prof. Zurfluh.

275* Guitar

1 credit. Prof. Cullen.

276* Flute

1 credit. Prof. Kirkpatrick.

277* Clarinet

1 credit. Prof. Tower.

278* Oboe

1 credit. Staff.

279* Bassoon

1 credit. Staff.

280* Saxophone

1 credit. Prof. Tower.

281* Trumpet/Cornet

1 credit. Prof. C. Moore.

282* French Horn

1 credit. Prof. Reese.

283* Trombone

1 credit. Prof. G. Moore.

284* Baritone/Euphonium

1 credit. Prof. G. Moore.

285* Tuba

1 credit. Prof. G. Moore.

286* Percussion

1 credit. Prof. Luckenbill.

360 Chamber Music

1/2 credit. General chamber music course from which groups such as Brass Ensemble, String Ensemble, Woodwind Ensemble, Chorale,

Piano Trio, and Piano Ensemble will be formed as need arises. Graded Pass/No Pass.

361* Concert Choir

1 credit. Open to any student; acceptance based upon auditions by appointment. In addition to giving several performances prior to Christmas and participating in the annual Spring Concert, this group sings approximately twenty concerts in churches and schools in Pennsylvania and neighboring states each spring. Graded Pass/No Pass. Prof. Stites.

362 Choral Union

1/2 credit. Vocal ensemble open to any member of the student body (without prior audition). Its sections (SATB or SSA) are determined by the enrollment per part. Graded Pass/No Pass. Prof. Knauer.

365* Orchestra

1 credit. Open to all qualified students; acceptance subject to approval by director. Presentation of several concerts during the year. String, chamber, and full orchestra music is performed. *Prerequisite for winds and percussion: permission of instructor.* Graded Pass/No Pass. Prof. Palmquist.

368 Jazz Lab

1/2 credit. The Jazz Lab offers small groups of students instruction in the basic skills of improvisation, stylization, and performance. The lab complements the jazz component of the Concert Band. Graded Pass/No Pass. Prof. G. Moore.

369* Concert Band

1 credit. Open to all qualified students; acceptance subject to approval by director. Performances include the annual winter and spring concerts and a number of off-campus appearances. Graded Pass/No Pass. Prof. Tower.

Theater

The minor in theater provides the student with opportunities to acquire and develop a broad range of skills and knowledge in theater design/technology or performance/literature, and allows the student the choice of concentrating in either of these areas.

The *minor in theater* requires the following: Theater 105, 155, 165, Dance 101, and two courses from English 113, 135, 313, and 332. For those completing the Design and Production concentration, Theater 255 and 350 are also required. For those completing the Performance concentration, Theater 360 and 365 are required.

105* Introduction to Theater

3 credits. **(Cultural Heritage)** Introduction to the various interrelated arts and disciplines that make up theater performance and production, such as acting, playwriting, directing, and scene design. Emphasis is on history, literature, and theory, with support from a textbook, audio-visual aids, analysis of scripts, and possibly one or more field trips. Prof. Severeid.

155* Introduction to Theater Technology

3 credits. **(Creative Expression)** Examination and application of theater staging, design, and lighting. Topics include scenery design and construction, execution of technical effects, and theatre safety. Prof. Fritz.

165* Basic Acting

3 credits. **(Creative Expression)** Theory and practice of the art and craft of the stage actor. Skills are developed in voice, body involvement, script analysis, style and theory. Students participate in projects requiring the memorization, creation, and presentation of scenes. Prof. Severeid.

255 Design and the Theater

3 credits. A course emphasizing the artistic interpretation of dramatic

literature as stage designs and the methods for presenting these concepts. Drawing and drafting skills are not required for this course. *Prerequisite:* Theater 155. Staff.

350 Theater Design/Technology Practicum

0 credit. Satisfactory completion of involvement in design and production for major college production.

360 Theater Performance Practicum

0 credit. Satisfactory completion of performance in major college theater production.

365 Advanced Acting

3 credits. An advanced course in acting techniques and styles. Students will study, interpret, and perform scenes from classic dramas in theater history from the Greeks to the Absurdist. *Prerequisite:* Theater 165. Prof. Severeid.

French

See Department of Modern Languages, page 52.

German

See Department of Modern Languages, page 52.

Department of History

Professors K. Kreider (*Chair*), Mumford, Ritsch, Vassady, Winpenny

Bachelor of Arts

History, the inquiry into the deeds and thoughts of man's past, is a valuable and enjoyable basis for a liberal education. The student of history invariably acquires, through this vicarious experience, a better perspective which can lead to sound judgment and wise decisions. Furthermore, an understanding of the repetitive and complex nature of man's perennial problems produces in the student a healthy sophistication and a steady self-confidence which help to dissolve the uncertainties of modern life.

The department's program is designed to prepare students for further study in graduate programs in history, theology, government, law, museum studies, and library science; or for careers in teaching, government service, and business.

The *history major* requires that a student satisfactorily complete 39 credits of course work in history: History 115 (or its equivalent) and 390; nine credits in United States history; nine credits in European history; six credits in non-United States, non-European courses; and nine credits in history electives.

History is one of the major areas in the social studies major which prepares a student for certification to teach in secondary schools. Students with interest in this area should read the detailed descriptions in the interdisciplinary section of this catalog.

A student may acquire a bachelor of arts degree as a history major and receive certification in social studies. For further explanation, speak to a member of the Department of History.

Combinations which allow the student to major in history and to pursue training for other careers are possible. For example, a student may major in history and also take a recommended program of courses in business. Consult with members of the department for other options in combination with communications, political science, or other program areas.

History majors must successfully complete a Modern Language course at the 112 level (or higher if so placed).

For a *minor in history*, the student must successfully complete 18 credits of course work, composed of the following courses: History 115, 201, 202, and three additional history courses. Students with specific career or personal interests are encouraged to discuss these with the department chair.

The Department of History participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

115* Modern European History

3 credits. (**Cultural Heritage**) An examination of the major developments that have taken place in European history since 1500. This course will not survey all of the developments over 500 years, but choose those that seem significant in their impact on subsequent developments. Staff.

201* History of the United States to 1877

3 credits. (**Social World**) An examination of the major developments in U.S. history from the beginning to 1877. This course will include a discussion of interpretations of the American past. Fall semester. Profs. Mumford, Winpenny.

202* History of the United States since 1877

3 credits. (**Social World**) An examination of the major developments in U.S. history since 1877. This course will include interpretations of the American past. Spring semester. Prof. Winpenny.

205 Modern Far East

3 credits. A general survey of China, Japan, Korea, and Southeast Asia from about 1800 to the present, with special emphasis on East-West relations. Prof. Mumford.

208* Technology and Values in the American Experience

3 credits. (**Values and Choice**) An effort to understand the values implicit in the choices that have been made in substituting a newer technology for an older technology throughout American history. Transportation, systems of production, the generation of power, medicine, and armaments constitute areas of particular emphasis. Prof. Winpenny.

210* Europe Since 1789

3 credits. (**Social World**) An examination of major political, social, and cultural developments in Europe from the French Revolution of 1789

to modern times. Prof. Vassady.

212* Race and Ethnicity in American History

3 credits. (Values and Choice) An analysis of the 19th and 20th century historical experiences of ethnic and racial groups in America, with a focus on the value systems they brought to America and the American value system by which they and their children were judged after their arrival here. Prof. Vassady.

215* English History

3 credits. (Cultural Heritage) An introduction to the political, social, and cultural history of England from the Anglo-Saxons to the Stuarts, with particular attention to the growth of the monarchy, parliament, the common law, and the church. Fall semester. Staff.

216* Modern Britain

3 credits. (Cultural Heritage) An introduction to the political, social, and cultural history of modern Britain from the Stuarts to the present, with particular attention to the growth of the monarchy, parliament, and the British Empire. Spring semester. Staff.

217* Europe in the Nineteenth Century

3 credits. (Cultural Heritage) Nineteenth-century Europe from the Vienna Congress to World War I, with particular emphasis on the conservative reaction to the French Revolution, the movement towards democracy, and the surge of nationalism. Alternate years. Prof. K. Kreider.

218* Europe in the Twentieth Century

3 credits. (Cultural Heritage) An examination of twentieth-century Europe, surveying both World Wars and their effect on modern society; emphasis on the rise of totalitarian ideologies, the plight of democracy, and the Depression. Spring semester. Prof. K. Kreider.

220* History of Soviet Union

3 credits. (Foreign Cultures and International Studies) A study of the Russian Revolution and the building of the new society, with emphasis on the Soviet Union's position in the modern world. Spring semester. Prof. K. Kreider.

221* History of Non-Violence

3 credits. (Values and Choice) An introduction to the thinking of those who proposed non-militarist, non-violent solutions to problems of their society. Readings from St. Francis, Tolstoy, Gandhi, Esquivel, Camara, Romero, Tutu, Thoreau, King, Dorothy Day, and the Berrigans are among those studied. Prof. K. Kreider.

227* History of Africa

3 credits. (Foreign Cultures and International Studies) A survey of African history from the beginning to modern times, including Africa's response to European imperialism and colonialism and the attainment of independence in the twentieth century. Prof. Vassady.

306 Recent History of the United States

3 credits. An intensive analysis of the vexing economic, political, social, and diplomatic forces responsible for shaping the American experience since 1900; conflicting interpretations emphasized. Prof. Winpenny.

307 American Economic History

3 credits. The growth and development of the American economy and its impact on human welfare. Emphasis is placed on the role of the entrepreneur, particular businesses, industrialization, government policy, and labor. Agrarian endeavor and slavery, and periodic recessions and depressions, together with the problems of unemployment and reindustrialization are considered. Prof. Winpenny.

310 American Ethnic History

3 credits. A study of immigration and ethnicity in the United States from colonial times to the present day. Prof. Vassady.

315 Renaissance and Reformation

3 credits. The Civilization of the Renaissance in Italy, with emphasis on Florence; Erasmus; and the Protestant Reformation of the sixteenth century. Staff.

316 The Age of Louis XIV

3 credits. Western Europe in the seventeenth century, with emphasis on the ascendancy of France, the Dutch Republic, and Stuart England. Staff.

319 History of Tsarist Russia

3 credits. The development of Russia from its medieval origins to the twentieth century, with emphasis on the development of Tsarist institutions, society, and political development. Fall semester. Prof. K. Kreider.

323 History of China

3 credits. A survey of Chinese history and culture, with emphasis on the modern period and the meeting of China and the West. Prof. Mumford.

324 History of Japan

3 credits. A survey of Japanese history and culture from the beginning to modern times, including Japan's response to the Western impact. Prof. Mumford.

328 Modern Africa

3 credits. Africa in the nineteenth and twentieth centuries, with emphasis on the age of imperialism and colonialism, as well as on African nationalism leading to independence. Prof. Vassady.

330-339 Studies in United States History

3 credits each course. An analytical inquiry into special periods and topics: Colonial America, Age of the American Revolution, Age of Jackson, Civil War and Reconstruction, the Gilded Age, and Urban history. Staff.

340-349 Minorities in United States History

3 credits for each course. An incisive view of minorities in a society venerating majoritarian rule: for example. Afro-American history, immigration and ethnicity, Southern history, Indian history, and women in history. Staff.

371-379 Special Topics

3 credits. Special subjects chosen as a response to student and faculty interest. Staff.

390 Historical Methods and Historiography

3 credits. The student learns to do research in manuscript, primary, and secondary resources and to write a research paper. In addition, the student examines interpretations and philosophies of history and recent approaches and techniques to research. Prof. Mumford.

403 A History of United States Foreign Relations

3 credits. A study of the major personalities, events, and trends in United States foreign policy, with an emphasis on the influence exerted by domestic considerations. Staff.

406 Social and Intellectual History of the United States

3 credits. An examination of the major social and intellectual movements in the United States from colonial times to the present with an emphasis on reform and reformers. Prof. Winpenny.

411 Greek and Roman History

3 credits. Athens in the classical age from Solon to Alexander; Rome during the Republic, the Augustan Age and the early Empire. *By special arrangement.* Staff.

412 Medieval History

3 credits. Western Europe from the decline of the Roman Empire to the fifteenth century, with emphasis on the feudal system, the role of the Latin Church, and the rise of universities. *By special arrangement.* Staff.

480-489 Independent Study

Variable credit. Designed to offer an opportunity to use techniques of historical interpretation in specific problem areas. *Prerequisites:* approval of the department chair and the Independent Study Committee, permission of instructor. Staff.

3 credits. A special course designed primarily for (but not limited to) senior majors in the Department. Research is an integral part of the learning experience. Staff.

Department of Mathematical Sciences

Professors Blaisdell, Shubert (*Chair*)
Associate Professors Koontz, Morse
Assistant Professors Hughes, Sanchis, Thorsen

Bachelor of Science

The program in mathematical sciences is designed to prepare the mathematics major for graduate study, for secondary teaching, or for employment in industry and government. Service courses provide students in the physical, managerial, social, and life sciences with the mathematical tools essential for their respective fields.

Some of these courses also satisfy the Core Program requirement and make the student aware of the cultural significance of mathematics and its contribution to the modern world. Instruction is designed to promote the development of proficiency with deductive reasoning, the ability to mathematically model "real" world phenomena, problem solving strategies, and computational skills.

The department offers five concentrations.

The *pure mathematics concentration* is designed to provide a foundation for successful graduate study in mathematics.

The *secondary education concentration* is required for secondary education certification. Students in this concentration are given a solid foundation in geometry, algebra, and statistics essential for effective teaching and analysis of the secondary school mathematics curriculum.

The *actuarial science concentration* provides training for those who wish to pursue careers in the actuarial profession. Actuaries use mathematical skills to define, analyze, and solve business and social problems pertaining to the financial impact of stochastic events. They are employed in fields such as insurance companies, federal and state governments, health organizations, and consulting firms.

The *statistics concentration* provides a firm foundation in this field of applied mathematics, enabling graduates to seek careers in government and industry, or to pursue graduate work leading to college teaching or employment as research statisticians.

The *computer science concentration* is for students who desire to be highly-skilled computer analysts with an unusually strong background in mathematics.

In addition to the major, the department offers a *minor* which requires Mathematics 121, 122, 151, 201, and nine

credits of courses above 205.

All mathematics majors are required to take a minimum of 42 credits in mathematics courses, including Mathematics 121, 122, 151, 201, 222, 235, 351, and 421. Acceptable mathematics electives are those courses numbered above 222. In addition, Computer Science 121 (Mathematical Analysis Core) is required and should be taken as early as possible. In order to meet these requirements, students may elect one of the following five concentrations:

The *pure mathematics concentration* requires Mathematics 301, 321, 422, 425, three credits from acceptable mathematics electives; and Physics 101 (Natural World Core).

The *secondary education concentration* (required for certification) requires Mathematics 231, 301, 321, 341, three credits of mathematics electives; Education 205, 230, 305, 415, and 473; Physics 101 (Natural World Core); and three credits of computer science in addition to Computer Science 121.

The *actuarial science concentration* requires Mathematics 352; three courses from Mathematics 331, 362, 453, and 455; three credits from other acceptable mathematics electives; Accounting 107 and 108; and Economics 100 and 102. Also required is evidence of successful completion of the course 100 examination of the Society of Actuaries by February of the junior year, and one additional actuarial examination by February of the senior year. The completion of additional examinations is strongly recommended. The following courses contain material related to actuarial examinations: Mathematics 121, 122, 201, 222, 331, 351, 352, 362, 453, and 455.

The *statistics concentration* requires Mathematics 352; three courses from Mathematics 231, 252, 331, and 453; and three credits from other acceptable mathematics electives.

The *computer science concentration* requires Mathematics 231, 321, and 362; six credits from other acceptable mathematics electives; Computer Science 122, 221, 222, and one other 300- or 400-level computer science course other than Computer Science 321.

The Department of Mathematics participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

011 Intermediate Algebra

2 credits. An accelerated review of the fundamental algebraic and computational skills used in certain science courses and prerequisite to Mathematics 101, 105, 117, 151, and 205. Credits are not applicable to the 125 required for graduation. Fall semester. Staff.

101 Precalculus Mathematics

4 credits. A highly accelerated study of the function concept and of particular classes of functions: polynomial, rational, algebraic, exponential, logarithmic, and trigonometric functions. The objective of this course is to prepare students for Mathematics 121. *Prerequisite:*

Mathematics 011 (competency). Fall semester. Staff.

105* Mathematics for Liberal Studies

3 credits. (Mathematical Analysis) An introduction to mathematical structures and applications designed to help students understand the historical and contemporary role of mathematics in human endeavors. Topics will be selected from a variety of areas such as logic, set theory, probability, statistics, graph theory, computer science, and matrix algebra. Topics may vary each semester. *Prerequisite: Mathematics 011 (Competency).* Staff.

117 Concepts of Calculus

4 credits. Designed to give students in the biological, social, and management sciences a firm working knowledge of calculus. The approach is intuitive, with emphasis on applications. Topics include differentiation, curve sketching, optimization, logarithmic and exponential functions, and integration. *Prerequisite: Mathematics 011 (competency).* *Note: Students who have received credit for Mathematics 121 may not enroll in this course.* Staff.

121* Calculus I

4 credits. (Mathematical Analysis) The basic concepts and techniques of the differential and integral calculus of elementary functions, including a study of limits and continuity. Applications are taken mostly from the physical sciences. *Prerequisite: Mathematics 101 (competency).* *Note: Students who have received credit for Mathematics 117 receive 2 credits for this course.* Staff.

122 Calculus II

4 credits. A continuation of Mathematics 121, involving the calculus of the trigonometric, exponential, logarithmic, and rational functions. Analytic geometry in the plane, parametric equations, polar coordinates, sequences and series are included, and an in-depth study of integration is completed. *Prerequisite: Mathematics 121.* Staff.

151* Probability and Statistics

3 credits. (Mathematical Analysis) The basic principles of probability, distributions, measures of location and dispersion, sample and population relationships, estimation, and hypothesis testing. The objective of this course is to introduce students to statistical thinking and methodology and their relation to everyday life. *Prerequisite: Mathematics 011 (competency).* Staff.

201 Linear Algebra

3 credits. A presentation of the basic concepts and techniques of linear algebra, including vectors, vector spaces, matrices, determinants, systems of linear equations, eigenvectors and linear transformations. Students will be expected to do mathematical proofs. *Prerequisite: Mathematics 121.* Prof. Koontz.

205 Mathematics for Elementary Teachers

3 credits. Provides a foundation in knowledge of mathematics essential for teaching in the elementary schools. Topics include number systems, geometry of measurement, coordinate geometry, three dimensional geometry, the metric system, functions, and various problem solving techniques. Content preparation for elementary teachers as suggested by the National Council of Teachers of Mathematics addressed. *Prerequisite: Completion of Mathematical Analysis core requirement.* Prof. Thorsen.

222 Calculus III

4 credits. A continuation of Mathematics 122, completing the topics of the calculus sequence, including three-dimensional analytic geometry, vectors and vector valued functions, calculus of functions of several variables, and an introduction to differential equations. *Prerequisite: Mathematics 122.* Staff.

231 Discrete Structures (Computer Science 321)

3 credits. Topics in discrete mathematics as related to computer science, including sets, relations, graphs, trees, combinatorics, and recurrence. *Prerequisite: Mathematics 121 or 151.* Fall semester. Prof. Morse.

235 Foundations of Abstract Mathematics

3 credits. Designed to help students make the transition from courses that emphasize problem solving in a concrete setting to those dealing

with abstract objects and concepts. Special attention will be given to writing correct mathematical proofs. Topics include logic; sets, relations, and functions; mathematical induction; algebraic structures; and cardinality. *Prerequisite: Mathematics 122.* Spring semester. Prof. Thorsen.

252 Statistical Methods

3 credits. A continuation of material presented in Mathematics 151. Statistical techniques are presented for solving a variety of problems arising in business, the social, physical and life sciences. Topics include simple and multiple regression, model building, analysis of count data, nonparametric statistics, analysis of variance, and survey sampling. *Prerequisite: Mathematics 151.* Prof. Blaisdell.

301 Abstract Algebra I

3 credits. A study of structures, such as groups, rings, integral domains, fields, polynomial rings, and ideals. Also included are topics from number theory, divisibility, congruence, and construction of number systems. *Prerequisites: Mathematics 201, 235.* Fall semester. Prof. Thorsen.

302 Abstract Algebra II

3 credits. A continuation of Mathematics 301 involving a more in-depth study of the structures introduced in Mathematics 301 and abstract vector spaces. Emphasis will be on the development of skills in proof construction and interpretation of abstract concepts. *Prerequisite: Mathematics 301.* Spring semester. *This course will be offered for the last time in 1997.* Prof. Thorsen.

321 Differential Equations

3 credits. A study of analytical and numerical methods for solving ordinary differential equations. Series and Laplace transformation methods are studied, including techniques for solving linear systems of differential equations. Computers will be used to implement numerical methods and to aid in constructing graphs such as phase-plane plots. *Prerequisites: Mathematics 201, 222.* Spring semester. Prof. Hughes.

331 Operations Research

3 credits. A study of mathematical techniques and models used to solve problems from business, management, and various other areas. Topics include linear programming, integer programming, dynamic programming, queuing theory, decision analysis, network analysis, and simulations. *This course is specifically geared towards the student's preparation for the Course 130 Actuarial Examination.* *Prerequisites: Mathematics 151, 201.* Fall semester, even-numbered years. Prof. Shubert.

341 Modern Geometry

3 credits. The concept of geometry as a logical system based upon postulates and undefined elements, along with an appreciation of the historical evolution of geometries. Topics include incidence geometries, planes and space, congruence, inequalities, parallel postulates, parallel projections, similarities, circles, and additional theorems. *Prerequisite: Mathematics 121 or permission of the instructor.* Fall semester, odd-numbered years. Prof. Koontz.

351 Mathematical Statistics I

3 credits. A comprehensive development of the theory of statistics through a study of probability and distribution theory, including the uniform, geometric, binomial, hypergeometric, negative binomial, multinomial, Poisson, exponential, gamma, chi-square, Student's *t*, Snedecor's *F*, and normal distributions. *Prerequisites: Mathematics 151, 222.* Fall semester. Prof. Sanchis.

352 Mathematical Statistics II

3 credits. A continuation of Mathematics 351. A study of principles of statistical inference with an emphasis on estimation and hypothesis testing. *Prerequisites: Mathematics 201, 351.* Spring semester. Prof. Sanchis.

362 Numerical Analysis

3 credits. A study of iterative methods suitable for computer programming which are useful in solving a variety of mathematical problems arising in the sciences, including actuarial science. Topics include solutions of equations in one variable, numerical integration, polynomial approximation, solution of linear systems, and numerical methods in matrix algebra. *Prerequisites: Mathematics 201, 222; Computer*

370-379 Special Topics in Mathematics

Variable Credit. A study in topics of special interest to advanced undergraduate mathematics students. *Prerequisite:* permission of the department chair. Staff.

421 Real Analysis I

3 credits. A rigorous study of the fundamental concepts of analysis, including such topics as sets and functions, sequences of real numbers, limits and metric spaces, continuity, and differentiation. *Prerequisites:* Mathematics 201, 222, 235. Fall semester. Prof. Hughes.

422 Real Analysis II

3 credits. A continuation of Mathematics 421, including such topics as integration, Taylor series, sequences of functions, and series of functions. *Prerequisite:* Mathematics 421. Spring semester, even-numbered years. Prof. Hughes.

425 Complex Variables

3 credits. A study of complex numbers, analytic functions, Cauchy's Theorem, the maximum modules theorem, harmonic functions, power series, Laurent's series, calculation of residues, evaluation of real integrals, and conformal mappings. *Prerequisite:* Mathematics 235. Spring semester, odd-numbered years. Prof. Thorsen.

453 Time Series Analysis

3 credits. A study of applied statistical methods, including analysis of variance, regression analysis, and time series analysis. *Note: The course is specifically geared toward the student's preparation for Course 120 Actuarial Examination. Corequisite:* Mathematics 352. Spring semester, odd-numbered years. Prof. Sanchis.

455 Mathematics of Compound Interest

3 credits. Topics include: measurement of interest, including accumulated and present value factors; annuities certain; yield rates; amortization schedules and sinking funds; and bonds and related securities. *Note: The course is specifically geared toward the student's preparation for Course 140 Actuarial Examination. Prerequisites:* Mathematics 151 and 122. Spring semester, even-numbered years. Prof. Sanchis.

480-489 Independent Study

Variable credit. *Prerequisite:* Approval of Department Chair and the Independent Study Committee. Staff.

Education 305 Practicum in Secondary Education

4 credits. A study of the instructional methodology of mathematics under the guidance of a clinical professor in mathematics. Field experience required. *Prerequisite:* Education 230. Fall semester, even-numbered years. Prof. Koontz.

Department of Modern Languages

Associate Professors Barnada, Daiga, Goodling,
Trachte (Chair)

Bachelor of Arts

The study of a modern foreign language brings together practical training in language skills (understanding, speaking, reading, and writing) with an understanding of the sociology, history and literature of the culture. The pragmatic virtues of a usable skill are joined with the humanistic values of liberal education.

The Department of Modern Languages offers programs of study which reflect its desire to encourage both mastery

of one or more foreign languages and an overall appreciation of the cultural contexts in which they occur. The department serves the core program, bachelor of arts degree candidates majoring in languages, students whose degree programs require studies in languages, and students who, for professional or personal reasons, wish to broaden their cultural background.

The department offers *majors in French, German, and Spanish*. The requirements of a major may be met by completing 30 credit hours in one language above 112. Language majors are required to participate in the Brethren Colleges Abroad program. Other students who have completed 112 or above are also encouraged to participate in the Brethren Colleges Abroad program.

Department majors must complete the following courses: Modern Languages 211, 212, 311, 323, and 495. If offered, a 312 or a 371 course may be substituted for 323. At least two of the first four courses above must be completed on the Elizabethtown College campus with members of the department faculty. In addition, the senior research project (495) must be written on campus under departmental faculty supervision. Majors must participate in the BCA program for one year and the courses taken must include advanced conversation and composition, phonetics, French/German/Spanish history, and History of (French/German/Spanish) Literature for a minimum of 15 credits in the major. After completing the required course work, majors must take the oral proficiency interview and receive a minimum proficiency rating of Advanced/Level 2.

The option of a *modern language minor* is also available. The requirements of a minor are: Modern Language 211, 212, 311, and 323. If offered, a 312 or a 371 course may be substituted for 323. At least two of the first four courses above must be completed on the Elizabethtown College campus. The remaining two may be completed on campus or in the Brethren Colleges Abroad program. After completing the required course work, students must take the oral proficiency interview and receive a minimum proficiency rating of Intermediate High/Level 1+.

International students with fluency in either French, German, or Spanish may pursue a major or minor under certain circumstances. First, they must place into the 300 level at Elizabethtown College. Second, if they participate in the BCA program, they must study only at the university level and must enroll in advanced literature or linguistics courses. Third, successful completion of the major or minor will be contingent upon the rating of Superior on the oral proficiency interview.

A placement test is administered free of charge during summer orientation for freshmen. In addition, it is offered during the first week of classes in the fall. It may be taken at any other time during the academic year for the general college fee of \$50. All students with two full years or more of language preparation must take the placement test before registering in language courses for academic credit.

111 Fundamentals of Language and Culture I (French, German, Spanish)

4 credits. Basic elements of structure and the phonetic system in culturally authentic contexts. The development of communicative competence in five skill areas: speaking, listening, reading, writing, and socio-cultural awareness. Audio and videotapes supplement proficiency-oriented textbooks.

112* Fundamentals of Language and Culture II (French, German, Spanish)

4 credits. (Foreign Cultures and International Studies) Expansion of basic elements of structure and the phonetic system in culturally authentic contexts. Additional development of communicative competency in five skill areas: listening, speaking, writing, reading, and socio-cultural awareness. Audio and videotapes supplement proficiency-oriented textbooks. *Prerequisite: Modern Language 111 or placement by examination.*

211* Communication Through Language and Culture I (French, German, Spanish)

3 credits. (Foreign Cultures and International Studies) Emphasizes functional proficiency. A functional-notational syllabus expands use of linguistic tasks such as asking questions, stating facts, describing, narrating, and expressing feelings. Use of authentic cultural materials and contexts heightens socio-cultural awareness. Audio and videotapes supplement texts and written materials. *Prerequisite: Modern Language 112 or placement by examination.*

212* Communication Through Language and Culture II (French, German, Spanish)

3 credits. (Foreign Cultures and International Studies) Expanded use of linguistic functions. Introduction and development of more advanced tasks such as sustaining opinions, explaining, comparing, and hypothesizing. Use of authentic cultural materials and contexts heightens socio-cultural awareness. Audio and videotapes supplement texts and written materials. *Prerequisite: Modern Language 211 or placement by examination.*

311 Making of Modern Society (French, German, Spanish)

3 credits. Analysis of important contemporary cultural phenomena and issues which have shaped and continue to shape the modern nation. Readings are taken from literary, sociological and political sources. Films, slides, and audio and videotapes supplement written materials. *Prerequisite: Modern Language 212 or permission of instructor.*

312 Languages for the Professions (French, Spanish)**A. Commercial French**

3 credits. Practical training in French business practices and a knowledge of the essential vocabulary and style specific to business communication. Of equal importance is the development of a critical perspective on the structure and basic workings of French business and industry within the context of the society as a whole. *Prerequisite: French 211 or permission of instructor.*

B. Spanish for the Health Professions

3 credits. Practical and authentic Spanish relevant to the medical and social services. A study of cultural attitudes, behaviors, and beliefs regarding health care issues that may influence the delivery of service to the Hispanic client. *Prerequisite: Spanish 211 or permission of instructor.*

318 Foreign Internship (French, German, Spanish)

Variable credit. Internships are considered as electives for the minor and must be preceded by at least one semester of study abroad in the target country. Internships are awarded variable credit depending on the nature and length of the placement. *Only students with an oral proficiency rating of Advanced/Level 2 and a B+ average in their language course work are eligible.*

323 Introduction to Literature (French, German, Spanish)

3 credits. Development of students' ability to read thoroughly, analyze, and appreciate literature. Selected readings representative of different literary genres. *Prerequisite: Modern Language 212 or permission of instructor.*

371-379 Special Topics (French, German, Spanish, Russian, Japanese)

3 credits. Topics of special interest not otherwise covered in the curriculum. Topics depend upon student interest and faculty availability. *Prerequisite: Modern Language 212 or permission of instructor.*

481-489 Independent Readings (French, German, Spanish)

3 credits. For senior language majors. Independent projects in some area of language or literature. *Prerequisite: Approval of department chair and Independent Study Committee.*

495 Senior Research Project

3 credits. For senior language majors. Involves researching a literary, linguistics, or cultural topic and the writing of a major paper in the target language. This capstone experience will be closely supervised by department faculty.

English As A Second Language**ESL 111 Intermediate English as a Second Language**

2 credits. Focuses on the improvement of speech, listening, reading and writing skills, emphasizing the descriptive and narrative paragraph. Audio and videotapes supplement the textbook and develop communicative competency. *Prerequisite: Placement by examination and TOEFL score. NOTE: Credits do not count toward graduation requirements.*

ESL 112* Advanced English as a Second Language and American Culture

3 credits. (Foreign Cultures and International Studies) A continuation of ESL 111, expanding the student's functional proficiency through advanced grammar and essay development, audio/video materials to improve listening comprehension, and extended oral discourse. Reading selections increase reading comprehension and awareness and understanding of American culture. *Prerequisite: ESL 111 or placement by examination and TOEFL score.*

Music

See Department of Fine and Performing Arts, page 42.

Department of Occupational Therapy

Associate Professor Jones
Clinical Lecturers Bentzel, Clark, Farley
Fieldwork Coordinator Salvadia

Bachelor of Science

Professional Accreditation: The Occupational Therapy program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association, 4720 Montgomery Lane, P.O. Box 31220, Bethesda, MD, 20824-1220. Phone 301-652-2682. The department has been accredited since 1976.

Occupational Therapy is a health profession that helps to improve the well being and functions of people with developmental delay and physical and psychologi-

cal dysfunction. The student in occupational therapy undertakes a program that integrates the humanities and the behavioral and physical sciences with professional study.

Emphasis on the importance of both the humanities and the sciences in preparing for professional life is further manifest in the philosophical approaches which shape the department. The bases of the program are a comprehensive knowledge about human development, an awareness of the significance of socio-cultural environments, and an understanding of the dynamics of human relations.

The primary objective is to prepare the student as a generalist practitioner who is qualified for employment in hospitals, community agencies, schools, rehabilitation centers, extended-care facilities and related human services agencies. With this foundation, the beginning therapist can progress to specialized areas of clinical practice as well as research, administration, and academia.

Occupational therapy majors must take Occupational Therapy 115, 116, 119, 127, 218, 223, 224, 227, 228, 307, 309, 320, 327, 328, 329, 330, 331, 410, 412, 429, 429p, 495; Biology 111, 201, 202; Psychology 105; and Mathematics 151. Due to course sequencing and competencies, Biology 201 and 202 must be taken at Elizabethtown College.

Academic and Fieldwork Education

The occupational therapy program comprises a four-year course of classroom study and at least six months of fieldwork education. Students are responsible for their transportation and travel costs to and from assigned clerkship and fieldwork centers. Such assignments begin in the junior year and continue throughout the program. Level-II fieldwork assignments are made to provide students with the best experience possible. Since Level-II fieldwork centers are often at a distance from the College and the student's home, there is no guarantee that a student can live at home during these experiences. Students should expect to pay room and board expenses during the Level-II fieldwork experience at the affiliated site. They are also responsible for other related fieldwork expenses such as physical examinations, vaccinations, and child abuse/police clearance when required by the facility.

The student may select either of the following options with faculty approval:

First Option: The student may complete three years of academic work followed by three months of Level-II fieldwork experience during the summer between the junior and senior years. The student completes the senior academic year followed by three months of Level-II fieldwork during the summer.

Second Option: The student may complete four years of academic work followed by six months of Level-II fieldwork experience. All Level II fieldwork must be completed within 24 months following the completion of academic coursework.

Specialty Fieldwork

After completing the required six months of Level-II fieldwork, the student may elect to complete specialty Level-II fieldwork. The clinical experience may be pursued in areas such as pediatrics, mental retardation, gerontology, home health, hand rehabilitation, sensory integration, school system, advanced psychosocial or physical rehabilitation, research, administration and education, and could be pursued abroad in countries which are members of the World Federation of Occupational Therapy.

Related Expenses

Additional expenses for the occupational therapy student normally include transportation to fieldwork sites, room and board during Level II fieldwork, insurance, registration examination fee, and similar charges. Although not required, all students are urged to become members of the American Occupational Therapy Association and the Pennsylvania Occupational Therapy Association. There are reduced rates for students.

National Certification Examination

Upon being awarded the bachelor's degree in occupational therapy and successful completion of Level-II fieldwork, the student is eligible to sit for the national certification examination, held twice a year, in July and January. The examination is conducted by the American Occupational Therapy Certification Board (AOTCB) which is responsible for awarding certification and the designation Occupational Therapist Registered (OTR). Most states require licensure to practice; state licenses, however, are usually based on the results of the AOTCB Certification Examination.

Admission/Retention Requirements for the Department:

1. Prior To Admission into the Department:

- a. The student must submit an application with all supporting documentation to the director of admissions before December 15 of the year prior to the anticipated date of matriculation. Students are admitted into the program in the fall semester only. Transfers are permitted at the sophomore level only, on a space available basis.
- b. The student must have an interview with a member of the Occupational Therapy faculty and/or a practicing clinician in order to determine eligibility.
- c. Freshman Occupational Therapy majors are selected by the Occupational Therapy faculty. The selection process includes consideration of rank in high school class, SAT scores, high school science grades and an interview which includes knowledge of occupational therapy.
- d. The names of freshmen Occupational Therapy students selected for the next academic year are submitted to the director of admissions.
- e. The Department of Occupational Therapy requires

that the student submit an updated medical history on forms provided by Elizabethtown College upon entering into the program. The examination may be completed by the student's family physician or by the College physician at cost to the student. It is also required that the student sign a waiver to release information in the medical history to the Department of Occupational Therapy.

2. Evaluation After Admission into the Department:

Admission into the Department of Occupational Therapy does not imply that a student is guaranteed completion of the entire course of study nor that the student is eligible to sit for the certification examination. The student is reviewed by a faculty evaluation committee at the conclusion of each academic year. If the committee believes that a student is not suitable academically or professionally for the area of study, the student is counseled into other areas of endeavor. In order to remain in the department, the student must have at least a 2.5 average in all courses required for the major (both occupational therapy and related requirements) at the end of the sophomore year. In order to participate in Level II Fieldwork, the student must have at least a 2.5 average in all courses required for the major at the end of the junior and senior years and must have passed the Level I Fieldwork component of all intervention/rehabilitation courses taken.

3. Methods of Exit from the Major and the Program:

- a. For the major only: Complete all requirements of the major with the exception of the Level II Fieldwork education courses. Must have a minimum grade point average of 2.0 in major requirements.
- b. For the program and permission to sit for the American Occupational Therapy Certification Board (AOTCB) Examination:
 - (1) Complete all requirements of the major (courses in the major as well as those designated by the major in other departments) and have a minimum grade point average of 2.5 in these courses.
 - (2) Complete the required Level II Fieldwork education courses, Occupational Therapy 398 and 471, with a P grade.

The Department of Occupational Therapy participates in the College Honors in the Discipline program. Eligible students are notified during the junior year, and provided with guidelines and details. Honors are noted on the graduation program and on the student's transcript.

115 Basic Concepts in Occupation

2 credits. An introduction to occupation. Explores those concepts which are necessary to understand the occupational nature of humans. An historical perspective of the importance of work, play, and leisure within the contexts of culture and family; the importance of purposeful and creative activity along the lifespan continuum; the cultural and developmental use of occupation to foster normal development and the effect of dysfunction and death on occupational behavior. *Permission of the instructor for nonmajors is required.* Fall semester.

116 Occupation as Therapy

2 credits. An introduction to the history and philosophy of the use of occupation to treat emotional and physical dysfunction, building on the occupational nature of humans. Includes movements leading to the establishment of the profession of occupational therapy, as well as the history and philosophical base of the profession from 1917 to the present. Roles and functions of OT personnel are identified, as well as the settings in which they practice. The professional organizations from international to state level are described. *Permission of the instructor for non-majors is required.* Spring semester.

119 Activities and Media I

2 credits. Theory and application of activities and media used in occupational therapy treatment. Experiential process emphasizes both performance of activities and exploration/analysis of occupational performance components of the activity. Exercises problem identification and solving decision making, organization, time management, and communication skills. *Permission of the instructor for non-majors is required.* Fall semester.

127 Professional Reasoning

2 credits. An introduction to the nature and processes of professional reasoning in the practice of occupational therapy. Students will study culture and context, personal and professional ethics, and clinical reasoning theory. They will develop academic and beginning professional behaviors, occupational therapy process skills of observation, interview, and clinical reasoning. *Prerequisites: OT 115, OT 119; Occupational Therapy Majors only.* Spring semester.

218 Kinesiology

2 credits. Application of the principles of functional anatomy with emphasis on normal and abnormal movement. Measurement techniques for range of motion and muscle testing are presented. Concepts are integrated in lab experiences. *Prerequisites: Biology 201; Occupational Therapy majors only.* Spring semester.

223 Life Skills I: Birth through Adolescence

4 credits. An examination of childhood development with a focus on life skills and occupational performance from conception through adolescence. An emphasis will be placed on normal patterns of activity while considering the biophysical cognitive and psychosocial aspects of development. Laboratory and field study will augment classroom learning. *Occupational Therapy majors only.* Spring semester.

224 Life Skills II: Young Adult Through Old Age

4 credits. An examination of normal human development along the young adult-through-old age segment of the developmental continuum. Emphasis is on occupational behaviors in the areas of self-care, work, leisure, marriage and parenting, social, retirement and disengagement and the effect of the aging process on these behaviors. Analysis of normal patterns of performance through lecture and laboratory discussion sessions. *Prerequisites: Occupational Therapy 223. Occupational Therapy majors only.* Spring semester.

227 Activities and Media II

2 credits. An expansion of the concept of occupational performance as presented in OT 119. Exposure to and practice with a variety of occupational performance tasks in the areas of self-care, work/education and play/leisure throughout the life span. Emphasis is on analysis, adaptation and treatment implications. *Prerequisite: OT 119.* Spring semester.

228 Group Process

1 credit. Experience and application of knowledge related to group dynamics. Emphasis on activity-focused therapeutic groups as well as normal group processes. *Corequisite: Occupational Therapy 224. Occupational Therapy majors only.* Spring semester.

303 Pediatric Intervention

4 credits. The course provides a comprehensive study of the role of occupational therapy in pediatrics. Theoretical principles and therapeutic techniques relevant to the evaluation and treatment of physical, psychosocial, occupational and environmental needs of

infants and children will be presented in a developmental framework. Case studies and professional reporting are coordinated with lecture/laboratory (2 credits) and seminar/Level-I Fieldwork (2 credits).

Corequisite: Occupational Therapy 305. Occupational Therapy majors only. Fall semester, 1996 only.

305 Pediatric Conditions

1 credit. Medical lectures relative to the etiology, diagnosis, management and prognosis of major pediatric conditions. *Permission of the instructor for non-majors is required.* Fall semester, 1996 only.

307 Neurobehavioral Science: Neurology

3 credits. An overview of basic neuroanatomy and neurophysiology with emphasis on the functional neuronal systems (motor, sensory, limbic), clinical conditions, and the therapeutic treatment. *Prerequisites: Biology 201, 202, 202L. Permission of the instructor for non-majors is required.* Fall semester.

308 Psychosocial Pathology

2 credits. Major psychiatric disorders, medication, treatment techniques and team responsibilities and relevant philosophical issues. Community mental health is included. *Prerequisites: Psychology 105, Occupational Therapy 223, 224. Occupational Therapy majors only.* Spring semester, 1997 only.

309 Methods of Research

2 credits. An overview of the research process relative to occupational therapy. Research tradition, philosophical foundation and thinking process will be discussed. The research process, including experimental type and naturalistic inquiry design, will be explored. Problem identification, knowledge base, sampling techniques, data gathering and analysis will be covered. Students will critique research articles in current professional literature. *Prerequisite: Mathematics 151.* Spring semester.

316 Psychosocial Rehabilitation

4 credits. An examination and application of major psychiatric theories relevant to occupational therapy. Various evaluation tools, treatment plan design, ethical concerns. Case studies and professional reporting are coordinated with lecture/laboratory (2 credits) and seminar/Level-I Fieldwork (2 credits). *Prerequisites: Psychology 105, Occupational Therapy 223, 224 and 224L. Occupational Therapy majors only.* Spring semester, 1997 only.

320 Health Care Systems

3 credits. A study of the development of health care systems in the United States. Includes administrative structure, payment systems, quality assurance, regulations and legislative issues. *Permission of the instructor for non-majors is required.* Spring semester.

325 Sign Language

2 credits. Basic competency in the use and comprehension of American sign language and to acquaint the learner with the cultural uniqueness of the deaf community. *Permission of the instructor required for majors and non-majors. NOTE: Occupational Therapy students may not count these credits toward graduation requirements.* Fall semester, Spring semester.

327 Pathology I

2 credits. Clinical lectures on common diagnoses, conditions, and disorders encountered in the practice of occupational therapy. Emphasis on etiology, symptomatology, prognosis and treatment methods of selected neurological and/or psychological conditions. *Prerequisites: Psy 105, OT 223, 224, Occupational Therapy majors only.* Fall semester.

328 Pathology II

2 credits. Focus is primarily on physiological and motor disorders (including medical and surgical conditions) in addition to more complex conditions involving both neurological and physiological conditions. Emphasis on etiology, symptomatology, prognosis and treatment methods. *Prerequisites: OT 223, 224. Occupational Therapy majors only.* Spring semester.

329 Occupational Therapy Practice I: Sensory & Cognitive Interventions

4 credits. Focuses on sensory and cognitive performance components

which impact on occupational performance areas. Students learn to apply the OT process to practice for individuals with sensory and/or cognitive deficits resulting from central nervous system disorders, peripheral nerve injury, head trauma, Alzheimer's disease, developmental disabilities and schizophrenia. *Prerequisites: OT 127, 223, 224. Corequisites: OT 307, 328, 331. Occupational Therapy majors only.* Fall semester.

330 Occupational Therapy Practice II: Psychosocial Interventions

4 credits. Focuses on the application of psychosocial treatment in occupational therapy. Exposure to frames of reference and theories as guidance for clinical reasoning for persons of different ages with physical, cognitive, and/or psychological disabilities. Special attention given to persons with mental illness as the primary diagnosis. Theoretical concepts, evaluation tools, and therapeutic techniques will be integrated with fieldwork experience. *Prerequisites: Psy 105, OT 223, 224, 228, 327. Occupational Therapy majors only.* Spring semester.

331 Occupational Therapy Process

1 credit. An in-depth view of the OT process of evaluation, treatment, and discharge. Professional association guidelines on documentation and on COTA and OTR roles will be studied. *Prerequisite: OT 127.* Fall semester.

371-379 Special Topics

A series of variable-credit courses with topics not otherwise covered in the curriculum. Offered when student interest and faculty availability justify. *Permission of the instructor required.*

398 Level II Fieldwork—Psychosocial Rehabilitation

0 credit. Twelve weeks of Level II Fieldwork experience in the area of psychosocial rehabilitation. In order to be eligible to sit for the national certification examination, the student must achieve at least the minimum passing scores on the AOTA Fieldwork Evaluation. Further information on Level II Fieldwork can be found in the department student handbook and the Level II Fieldwork Student Manual. *Occupational Therapy majors only. Graded Pass/No Pass. Summer term.*

402 Geriatric Occupational Therapy

3 credits. Overview of the role of occupational therapy with the elderly. Emphasizes understanding of the characteristics and needs of older persons, and the application of generic as well as geriatric occupational therapy to this population. Service management issues such as health care legislation and reimbursement are included. *Prerequisites: Occupational Therapy 224, 316, 405. Occupational Therapy majors only.* Spring semester, 1997, 1998 only.

405 Physical Rehabilitation

4 credits. Overview of evaluations and treatment intervention strategies, including the neurodevelopmental, biomechanical, and rehabilitative approaches used to enhance the function of individuals with major physical disabilities. Case studies and professional reporting are coordinated with lecture/laboratory (2 credits) and seminar/Level-I Fieldwork (2 credits). *Prerequisite: Occupational Therapy 218; Corequisite: Occupational Therapy 407. Occupational Therapy majors only.* Fall semester, 1996, 1997 only.

407 Physical Pathology

2 credits. Medical lectures relative to the etiology, prognosis and treatment of the major conditions resulting in physical disability. *Permission of the instructor for non-majors is required.* Fall semester, 1996, 1997 only.

409 Methods of Research

3 credits. The scientific method as the basis for research. Included are experimental designs and naturalistic inquiry methods. Students plan scholarly research within an area of professional interest, using evaluation and guidelines for conducting research. Other topics include literature critique, grant writing, publishing and data analysis. *Prerequisites: Mathematics 151, 252. Occupational Therapy majors only.* Fall semester, 1996, 1997 only.

410 Administration, Management and Supervision

3 credits. An introduction to the administration and management of occupational therapy departments, the supervision of OT personnel,

and occupational therapy case management. Focus will be on developing skills in program planning and evaluation, quality improvement, financial management, leadership, personnel management with an emphasis on the COTA, and team building. *Senior Occupational Therapy majors only.* Spring semester.

412 Research Application

2 credits. Offers senior OT students the opportunity to plan and carry out scholarly research within an area of interest. Students will develop research proposals following either experimental or naturalistic models, and do literature critiques of research articles in appropriate journals. Information on grant writing and publishing presented. *Prerequisites: MA 151, OT 309.* Fall semester.

414 Advanced Senior Practicum Research

Variable credit. Taken in conjunction with Occupational Therapy 409, Methods of Research; for students who desire to participate in implementing a data based research project to be conducted either on campus or at a nearby clinical facility. *Occupational Therapy majors only.* Spring semester, 1997, 1998 only.

421 Splinting and Rehabilitation of the Hand

2 credits. Functional anatomy of the hand incorporated in basic splinting and rehabilitation principles. Emphasis on evaluation and fabrication techniques with application to specific disabilities. *Prerequisites: Biology 201 and Occupational Therapy 405. Occupational Therapy majors only.* Spring semester, 1997, 1998 only.

429 Occupational Therapy Practice III: Neuromusculoskeletal Assessment and Intervention.

4 credits. Students learn to apply the occupational therapy process of evaluation, treatment planning, and treatment to people with deficits in musculoskeletal or neurological systems. *Prerequisites: Bio 201, 202, OT 218, 309, 327, 328, 331. Occupational Therapy majors only.* Fall semester.

429P Occupational Therapy Practice III: Facilitating Occupational Performance in Neuromusculoskeletal Dysfunction

2 credits. Students learn the impact of neurological or musculoskeletal deficits on occupational performance and methods of remediation of function. *Prerequisite: OT 429. Occupational Therapy majors only.* Spring semester.

OT 430 Senior Seminar

4 credits. The culmination of the occupational therapy curriculum. Intended to help students integrate knowledge from various areas of practice, using all types of clinical reasoning. Independent student initiative in the learning process is emphasized. Case studies used to present complex conditions and situations. In addition students choose an area of focus for an independent, in-depth learning project such as a community service project, clinical or academic research, or specific practice area. *Prerequisites: OT 320, 329, 330, 429, 429P. Corequisites: 410, 429P. Occupational Therapy majors only.* Spring semester.

471 Level II Fieldwork—Physical Rehabilitation

0 credit. Twelve weeks of Level II Fieldwork experience in the area of physical rehabilitation. In order to be eligible to sit for the national certification examination, the student must achieve at least the minimum passing scores on the AOTA Fieldwork Evaluation. Further information on Level II Fieldwork can be found in the department student handbook and the Level II Fieldwork Student Manual. *Prerequisites: All academic course work, Occupational Therapy 398, and CPR certification if required by the facility. Occupational Therapy majors only.* Graded Pass/No Pass. Summer or fall semester.

479 Level II Fieldwork – Specialty

No credit. Variable length of Level II Fieldwork experience in area of student's interest. Arranged on an availability basis. *Prerequisites: Occupational Therapy 398 and 471. Occupational Therapy majors only.* Fall semester.

481-488 Independent Studies

Variable credit. Purpose of this course is to offer advanced students opportunity to study specialized areas not otherwise included in the curriculum. *Prerequisite: Approval of chair and Independent Study Committee.*

Department of Philosophy

Associate Professor Matteo (*Chair*)

Assistant Professor Silberstein

Courses in the Department of Philosophy are designed to deal with the fundamental questions which continue to puzzle us in spite of our learning. The program promotes inquiry into such perennial philosophical questions as to the nature of justice, happiness, knowledge, truth, and freedom. The goal of the program is to produce awareness of the answers that have been proposed in response to these questions, and to provide the skills for an analysis of the assumptions and values which underlie different intellectual disciplines. The study of philosophy encourages the student to develop the ability to analyze problems, understand basic issues, and develop possible solutions. It challenges the student to reflect critically upon the problems involving values, and to examine problems that cut across the boundaries of science, art, politics, and religion. Philosophy examines alternative world views and forms of knowledge, and helps the student to develop an awareness of intellectual history. Philosophy has always been central to the liberal education.

A major in philosophy is an excellent preparation for those going on to graduate school and for those planning professional vocations. It is an especially good background for the law, the ministry, computer science, and the natural sciences. It will prove valuable in any occupation which demands clear thinking and the ability to understand the points of view of other people. The program is designed to give the student maximum opportunity to get a broad, liberal education and to develop special skills along the way.

A major in philosophy requires nine courses in philosophy, a 3-credit senior thesis, and modern language. Specific courses are Philosophy 105, 115, 180, 201, 240, 310, 490; two courses from Philosophy 213, 305, and 320; a three-credit departmental elective; and Modern Language 112 or higher.

A minor in philosophy requires: Philosophy 105, 110 or 180, 115, 201, 240 or 310, and three credits from 213, 240, 305, 310, or 320.

The Department of Philosophy participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

105* Introduction to Philosophy

3 credits. (**Cultural Heritage**) An introduction to the central problems of philosophy by exploring some of the classic responses to such issues as: in what sense can we know there is human freedom, what is the

status of knowing, what is the foundation of values, what is the nature of justice in regard to social and political organizations. Prof. Silberstein.

110* Logic and Critical Thinking

3 credits. (**Power of Language**) A study of the techniques of analyzing texts, arguments, and language. The process of inquiry into evidence and truth. The nature of inference from premises to conclusion, rules for deductive and inductive process; informal inferences and fallacies, and theory of definition. *Prerequisite: Mathematics 011 (competency).*

NOTE: A student who has received credit for English 150 to satisfy the Power of Language requirement may not enroll in Philosophy 110. Philosophy 110 is available only to those students with English 150 placement level. Prof. Silberstein.

115* Ethics

3 credits. (**Values and Choice**) A study of the nature, origin, and development of ethical theories from a historical perspective and their relevance to some significant problems in contemporary life. Special attention is given to the exploration of enduring moral concerns, such as moral relativism, the place of reason in ethics, egoism and altruism, and the nature of moral responsibility. Prof. Matteo.

180* Symbolic Logic

3 credits. (**Mathematical Analysis**) Studies the methods of such formal rational procedures as syllogistic, propositional, quantificational, and modal logic, and the informal procedures of inductive reasoning, meaning and definitions, and informal topics including fallacies.

Prerequisite: Mathematics 011 competency. Prof. Silberstein.

201* Ancient and Medieval Philosophy

3 credits. (**Cultural Heritage**) An introduction to the beginning of Western philosophy: the pre-Socratic philosophers, the thought of Parmenides, Socrates, Plato, and Aristotle, and the medieval thinkers such as Augustine and Aquinas. Prof. Matteo.

213* Philosophy of Science

3 credits. (**Natural World**) An examination of the scientific method and models as they have developed historically, and an analysis of the impact of science upon the modern world and its limitations as a method into the exploration of value theories and social change. Prof. Silberstein.

240* Modern Philosophy

3 credits. (**Cultural Heritage**) A study of enduring issues in the writings of the 17th and 18th century rationalists: Descartes, Spinoza, Leibnitz; and empiricists: Locke, Berkeley, Hume, and Kant. Prof. Matteo.

255 Advanced Ethics

3 credits. A constantly changing inquiry into the values, norms, and thought forms used in the areas of bioethics, environmental ethics, business ethics, and the ethics of conflict and social change. Staff.

305 Philosophy of Law

3 credits. An analysis of the major underlying philosophical issues of both criminal and civil law. Special attention is given to natural law theory, legal positivism, epistemological foundations of legal reasoning and interpretation, and the moral foundations of retributive and distributive justice. Prof. McDonald.

310 Philosophy in the 19th and 20th Centuries

3 credits. The foundation of Kant's critical philosophy and German Idealism along with the 19th century roots of pragmatism, scientism, and existentialism. An analysis of the leading trends in 20th century Western thought including Process Philosophy, the Anglo-American analytic tradition, and Existentialism and Phenomenology. Prof. Matteo.

320 Philosophy of Religion

3 credits. A study of man's rational efforts to establish the validity of the religious perspective with particular emphasis on theism, the proofs of the existence of God, religious experience, and the nature of evil. Staff.

371-79 Special Topics in Philosophy

3 credits. A constantly changing specialized study within the field of philosophy featuring such areas as existentialism, philosophy of language, the mind, epistemology, and other topical interests. Staff.

480-89 Independent Study

Variable credit. *Prerequisite: Approval of chair and Independent Study Committee.*

490 Senior Thesis

3 credits. An individualized study project involving research of a topic and the preparation of a major paper. The paper is presented orally to the Philosophy Department staff and interested persons. This is normally done during the fall or spring term of the senior year. Staff.

Department of Physical Education and Health

Associate Professors Kauffman, Latimore (*Director of Athletics and Chair*)

Assistant Professor Whitmore

Staff: T. Hill (*Assistant Director of Athletics*), Roderick, Schlosser

The Department of Physical Education prepares students for a lifetime commitment to physical activity and well-being, with an emphasis on individual fulfillment. Courses in physical education (1) develop positive attitudes and skills leading to physical fitness and health; (2) develop discipline and commitment to goals and, in team sports, to social and moral standards such as sportsmanship and teamwork; and (3) stress awareness of beneficial and harmful health practices as they relate to physical well-being and quality of life.

All students are required to take three credit hours of physical well being courses, of which at least two must be activity courses. No more than five (5) credits of physical well being courses may be counted toward the graduation requirement.

105* Swimming

1 credit. (**Physical Well Being**) Instruction in the four basic strokes, survival swimming, and water safety.

110 Physical Education for the Elementary School Child

2 credits. A study of physical education at the elementary school level, with instruction in games and activities that enhance the physical development of children, ages 4-12. The course also focuses on teaching techniques and organizational skills.

110L* Physical Education for the Elementary School Child Laboratory

1 credit. (**Physical Well Being**) *Note: Students must enroll in both the lecture portion of this course (Physical Education 110) and the laboratory portion (Physical Education 110L*) to receive credit. Physical Education 110 will count as two credits of free electives; Physical Education 110L* will count as a one credit Physical Well Being activity course. Graded Pass/No Pass.*

115* Physical Fitness and Wellness

1 credit. (**Physical Well Being**) Instruction in cardiovascular-type

activities, strength, flexibility, weight control, nutrition, myths, physical activity, injury prevention and rehabilitation, safety, fitness equipment, stress, relaxation, games, exercises, and the consumer-personalizing fitness, aerobic exercises.

118 Lifeguarding

1 credit. Provides lifeguard candidates and current lifeguards with the knowledge and skills necessary to keep the patrons of aquatic facilities safe in and around the water. Includes instruction in lifeguarding skills, CPR for the professional rescuer and first aid. Graded Pass/No Pass.

119* Scuba

1 credit. (Physical Well Being) A total introduction to the use of SCUBA equipment, safety; includes work in the pool and classroom. Includes deep water dive certification by the Professional Association of Diving Instructors (PADI). Graded Pass/No Pass.

120* Aerobics

1 credit. (Physical Well Being) Inspiration - perspiration: a diversified fitness program that will give a complete workout. Graded Pass/No Pass.

125* Tennis

1 credit. (Physical Well Being) Rules, playing techniques, and skill development.

130* Bicycling

1 credit. (Physical Well Being) The purpose of this course is to develop a better awareness of safety, recreation, and fitness while biking. *Equipment needed: a bicycle with five or more gears, a bicycle flag, and a helmet.* Graded Pass/No Pass.

140* Bowling

1 credit. (Physical Well Being) Rules, playing techniques, and skill development. Graded Pass/No Pass.

146* Racquetball

1 credit. (Physical Well Being) Rules, playing techniques, and skill development.

150* Volleyball

1 credit. (Physical Well Being) Rules, playing techniques, and skill development.

161-163* Adapted Physical Education

1 credit. (Physical Well Being) Individual activity or collective exercise adapted to needs and abilities of the student. Graded Pass/No Pass.

165* Golf/Badminton

1 credit. (Physical Well Being) Rules, playing techniques, and skill development.

175* Archery/Badminton

1 credit. (Physical Well Being) Rules, playing techniques, and skill development.

181-183* Self-directed Physical Education Activity

1 credit. (Physical Well Being) For the student who has extenuating circumstances which prohibits the person from meeting regularly scheduled physical education classes. Graded Pass/No Pass.

185* Basketball

1 credit. (Physical Well Being) Rules, playing techniques, and skill development.

190* Horsemanship

1 credit. (Physical Well Being) Basic riding positions, balance, equine safety. Discuss equine behavior, care, tack, styles, and management. Graded Pass/No Pass.

194* Skiing

1 credit. (Physical Well Being) Graded Pass/No Pass.

195* Soccer

1 credit. (Physical Well Being) Rules, playing techniques, and skill development.

1996-97 Academic Program

218* Water Safety Instruction

1 credit. (Physical Well Being) This course follows American Red Cross certification procedures. Graded Pass/No Pass.

Department of Physics

Including Earth Science and Engineering

Professor Ranck

Associate Professors Leap, Stuckey

Lecturer Ferruzza (*Chair*)

Part-time Instructor R. Evans

Bachelor of Arts; Bachelor of Science

Programs in the Department of Physics are designed to convey an appreciation and understanding of physical and natural systems and to prepare students for professional careers in science and technical fields. In accord with the philosophy that both majors and nonmajors should be broadly exposed to studies of natural phenomena, the department offers a variety of formal courses and informal learning experiences, all intended to cultivate an ability for continuing self-education. Analysis, problem solving, and hands-on experience are emphasized at all instructional levels.

Students majoring in the department commonly go on to graduate school or to careers in physics, engineering, or education.

Programs in Physics

Programs in physics lead to the B.S. degree. The **physics major** is preparation either for graduate school or for the technical job market. The **engineering physics major** is a practical program designed to lead to a technical career in industry. The **secondary education major in physics** and the **general science education major** (with a concentration in physics), offered in conjunction with the education department, lead to Pennsylvania teacher certification at the secondary level.

Programs in Engineering

Engineering majors in the 3-2 program study for three years at Elizabethtown College and two years at The Pennsylvania State University. Upon completion of the program, the B.A. degree is awarded by Elizabethtown College and the B.S. degree by The Pennsylvania State University. Students in the 3-2 program who maintain a 3.0 cumulative grade point average at Elizabethtown College are guaranteed admission to the College of Engineering at The Pennsylvania State University.

The Elizabethtown College four-year engineering programs, which lead to the B.S. degree, are preparation for technical careers in industry. The **computer engineering major** combines studies of engineering and

computer technology, including both hardware and software. The **industrial engineering major** combines engineering physics with business administration.

Physics majors are required to take Physics 101, 102, 202, 221, 241, 301, 302, 321, 353, 421, 422, 491, and 492; Mathematics 121, 122, 201, 222, and 321; Chemistry 105 and 113; and Computer Science 115.

Engineering physics majors are required to take Physics 101, 102, 202, 221, 241, 301, 302, 321, 353, and either Physics 262 or Engineering 333; Mathematics 121, 122, 201, 222, and 321; Engineering 118, 361, and 491; Computer Science 115; Chemistry 105 and 113; and Economics 100.

Secondary education majors in physics are required to take Physics 101, 102, 202, 221, 241, and 321; Earth Science 215; Engineering 333; Chemistry 105 and 113; Biology 105, 105L, 108, and 108L; Mathematics 121, 122; and 222; Computer Science 115 or 121; and Education 205, 230, 305, 415, and 473.

General science education majors (with a concentration in physics) fulfill the course requirements listed in Interdisciplinary Programs under General Science Certification.

At Elizabethtown College, **engineering students in the 3-2 program** are required to take Physics 101, 102, 202, 221 and 353 or 301 and 302, 241, 262, and Physics 321 or Engineering 333; Engineering 118 and 361; Mathematics 121, 122, 201, 222, and 321; Chemistry 105 (114 for chemical engineering majors) and 113; Computer Science 115; Economics 100; and English 100 or 150, and 382. Students in the 3-2 pre-engineering program are exempt from one three credit course in *either* the Cultural Heritage or Social World area of understanding.

Computer engineering majors are required to take Physics 101, 102, 202, 241, and 302; Computer Science 121, 122, 221, and 222; Engineering 118, 230, 332, 333, 361, 422, 433, and 491; Chemistry 105; and Mathematics 121, 122, 201, 222, and 321.

Industrial engineering majors are required to take Physics 101, 102, 202, 241, 321, and either Physics 262 or Engineering 333; Engineering 118, 361, 411, and 491; Mathematics 121, 122, 151, 201, and 222; Accounting 305; Computer Science 115; Chemistry 105 and 113; Economics 100 and 102; Business Administration 265, 369, 466, and either 330 or 468; either Business Administration 248 or Mathematics 331; either Business administration 355 or English 382; and Psychology 105.

Minors in physics are required to take Physics 101, 102, 202, 221, and eight additional credits in physics.

The Department of Physics participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

101* College Physics I

4 credits. (**Natural World**) Introduction to the basic concepts of mechanics, classical kinematics and dynamics (linear and rotational motion, work and energy, impulse and momentum), friction, statics, fluids, heat. *Prerequisite: Mathematics 121. Students who have credit for Physics 103 may not enroll in this course for credit.* Spring semester. Prof. Ferruzza.

102 College Physics II

4 credits. A continuation of Physics 101. Introduction to the basic concepts of waves and electricity, magnetism, geometrical optics, interference and diffraction, and brief introductions to relativity and radioactivity. Hours: lecture 3, discussion 1, laboratory 2. *Prerequisite: Physics 101. Students who have credit for Physics 104 may not enroll in this course for credit.* Fall semester. Prof. Ferruzza.

103* General Physics I

4 credits. (**Natural World**) Study of the principles of physics, including mechanics (motion, equilibrium, work, energy, momentum), fluids, heat, and oscillatory motion. Hours: lecture 3, discussion 1, laboratory 2. *Prerequisite: high school algebra. Students who have credit for Physics 101 may not enroll in this course for credit.* Fall semester. Prof. Stuckey.

104 General Physics II

4 credits. Continuation of Physics 103. Topics include waves, sound, electricity and magnetism, geometric optics, and radioactivity. Hours: lecture 3, discussion 1, laboratory 2. *Prerequisite: Physics 103. Students who have credit for Physics 102 may not enroll in this course for credit.* Spring semester. Prof. Stuckey.

114* Cosmology

3 credits. (**Natural World**) A non-mathematical study of the origin, evolution, structure, and future of the universe according to various scientific theories. The history of cosmology and its interactions with society. Worldviews associated with nihilism, existentialism, holism, reductionism, the anthropic principles, and the theistic principle. Spring semester. Prof. Stuckey.

202 College Physics III

4 credits. Mathematical physics with applications to electrostatics, magnetostatics, and the 1-dimensional heat and wave equations. The laboratory is an introduction to numerical analysis. Hours: lecture 3, laboratory 3. *Prerequisites: Physics 102; Co- or prerequisite Mathematics 222.* Spring semester. Prof. Stuckey.

212* Astronomy

4 credits. (**Natural World**) A study of the structure and evolution of stars, planetary systems, galaxies and the universe. Less familiar astronomical objects such as black holes, quasars, cosmic strings, texture, and wormholes are also studied. Laboratories provide an opportunity to observe planets, stars, clusters, and galaxies; they also provide practical experience in determining astronomical quantities. Hours: lecture 3, laboratory 2. Fall semester. Prof. Stuckey.

221 Modern Physics (Chemistry 343)

3 credits. Physics of the 20th century including X-rays, radioactivity, atomic spectra, blackbody radiation, an introduction to quantum mechanics, atomic orbitals, elementary particles, and nuclear structure and transformations. *Prerequisites: Physics 102, Mathematics 122.* Fall semester. Prof. Ranck.

241 Electronics

3 credits. Practical and theoretical study of fundamental components and circuits, including transistors, diodes, integrated circuits, power supplies, filters, amplifiers, control circuits, and some digital electronics. Hours: lecture 2, laboratory 4. *Prerequisite: Physics 102.* Fall semester. Staff.

262 Statics & Dynamics

3 credits. Equilibria of particles and rigid bodies subject to concentrated and distributed forces, with practical applications to mechanical systems. Topics include unbalanced forces, work and energy, and

impulse and momentum. *Prerequisite: Physics 101.* Spring semester. Prof. Ferruzza.

301 Mechanics

3 credits. An intermediate course in mechanics. Newtonian mechanics of systems of particles, central forces, oscillations, collisions, rigid-body dynamics, and the Lagrangian and Hamiltonian formalisms for generalized coordinates. *Prerequisite: Physics 202; Co- or prerequisites: Mathematics 201, 321.* Fall semester. Staff.

302 Electromagnetism

3 credits. An intermediate course in electromagnetism, including electro- and magnetostatics and dynamics, Maxwell's equations, macroscopic fields, electromagnetic waves, and special relativity. *Prerequisite: Physics 202; Co- or prerequisite: Mathematics 321.* Spring semester. Staff.

321 Thermodynamics

3 credits. Properties of pure substances, equations of state, laws of thermodynamics applied to analysis of closed systems and control volumes. Emphasis on macroscopic thermodynamics and engineering applications. *Prerequisite: Physics 102.* Fall Semester. Prof. Ferruzza.

353 Advanced Physics Laboratory (Chemistry 353)

4 credits. Experimentation, data acquisition, data analysis, and technical presentations appropriate for the physical and chemical sciences. Emphasis on statistics of physical/chemical experimental data and computer methods of analysis, including electronic laboratory notebooks and computer networks. Hours: lecture 2, laboratory 6. *Prerequisites: Physics 102, Mathematics 121, Computer Science 115.* Fall semester. Prof. Ranck.

371-379 Topics in Physics

Variable credits. Topics in physics not covered in other courses. *Prerequisite: Permission of instructor.* Staff.

421, 422 Quantum Physics I, II

3 credits each. Quantum theory, including the formalisms of Schrodinger, Heisenberg, and Dirac; the uncertainty principles; quantum solutions to problems in classical mechanics; spin-1/2 systems; scattering theory perturbation theory; atomic physics; Bose-Einstein and Fermi-Dirac statistics for many-particle systems; and the interaction of radiation with matter. *Prerequisites: Physics 221, 301, and 302.* Staff.

423 General Relativity

3 credits. An introduction to calculus on manifolds, differential topology, exterior calculus, affine geometry, Riemannian geometry, special relativity, and general relativity with applications to relativistic cosmology. *Prerequisites: Mathematics 122 and 201 or permission of instructor.* Spring semester. Prof. Stuckey.

481-489 Independent Study

Variable credits. Study and experimentation in an area of interest to the student and faculty member. *Prerequisite: Approval of Chair and Independent Study Committee.* Staff.

491, 492 Research I, II

3 credits each. An original experiment or theoretical investigation performed under the close supervision of a faculty member. A written thesis and a public seminar are required. Hours: laboratory 6. *Prerequisite: Permission of instructor.* Staff.

Earth Science

ES 111* The Dynamic Earth

4 credits. (Natural World) The physical makeup of the earth and the dynamics of its evolution as a planet. Included are studies of basic minerals, rock families, global tectonics, volcanism, seismicity and geological time. Hours: lecture 3, laboratory 2. Prof. Scanlin.

ES 112* The Geology of Landscape

4 credits. (Natural World) The study of landscapes, their origin and

evolution as produced by natural agents including river systems, glaciers, groundwater, wind, and waves. Contrasting views of Davis, Hack and other theorists are included. Hours: lecture 3, laboratory 2. Prof. Scanlin.

ES 215* Meteorology

3 credits. (Natural World) General studies of weather and associated atmospheric phenomena, their causes, effects, and geographic distribution. Standard weather maps are used. Prof. Dixon.

ES 215L* Meteorology Laboratory

1 credit. (Natural World) Comprehensive meteorological analysis to include a 3 dimensional structure of the atmosphere. *Co- or Prerequisite: Earth Science 215.* Staff.

ES 216 Physical Geography

3 credits. An introduction to the physical bases for geography including earth/sun relationships, map projections, weather patterns, climates, and landforms. *Prerequisite: education major or permission of instructor.* Spring semester. Staff.

Engineering

ENGR 118 Engineering Methods & Graphics

3 credits. Introduction to engineering communication through graphics (projections, pictorials, dimensioning, working drawings, graphs, and spatial relationships). Instruction and practical exercises in computer graphics, including computer aided design (CAD). Hours: lecture 2, laboratory 6. Spring semester. Prof. Chambers.

ENGR 230 Microcomputer Architecture (Computer Science 230)

3 credits. The operation of the microcomputer, the physical characteristics of its architecture, and the implementation of software are discussed. The course explores the UNIX, Macintosh, and IBM operating environments. Topics covered include computer ethics, hardware components such as memory registers, central processor types, controllers, peripherals such as disk drives and tape drives, ASCII code implementation, input/output architecture and devices, memory management, networking, and multimedia. *Prerequisite: Computer Science 122.* Prof. R. Evans.

ENGR 332 Computer Organization and Architecture (Computer Science 332)

3 credits. Introduction to Boolean algebra, design of combinational and sequential circuits, and their use in von Neumann computer architecture. Basic parts of computer systems including memory, control and input-output systems are studied. The student is expected to design a simple micro-programmed computer. *Prerequisite: Computer Science 222.* Fall semester. Prof. Leap.

ENGR 333 Digital Circuits and Computer Interfacing (Computer Science 333)

4 credits. Digital logic and integrated circuits to implement logic; architecture and machine language programming of mini-computers and microprocessors; design, testing, and construction of instrument-to-computer and computer-to-instrument interfaces; design and testing of supporting software. *Prerequisite: Computer Science 122.* Spring semester, odd numbered years. Prof. Leap.

ENGR 361 Engineering Practices Seminar

1 credit. Weekly presentations and discussions by students and faculty of practices, techniques, and topics in the engineering profession. *Prerequisite: permission of instructor.* Fall semester. Prof. Ferruzza.

ENGR 411 Work Measurement, Quality Assurance, and Human Factors

3 credits. Production management with emphasis on process improvement, work measurement, cost reduction, application of statistical techniques to quality assurance; and ergonomics. *Prerequisite: Business Administration 248; Co- or prerequisite: Business Administration 369.* Fall semester. Prof. Ferruzza.

ENGR 422 System Programming II (Computer Science 422)

3 credits. An examination of the principles and theories behind the design of operating systems as well as their practical implementation. Topics include executives and monitors, task handlers, scheduling algorithms, file handlers, device drivers, and interrupt handlers, theories of resource allocation and sharing, multiprocessing and interprocess communication. *Prerequisites:* Engineering 332. Spring semester, even numbered years. Staff.

ENGR 433 Advanced Computer Engineering Laboratory

3 credits. Laboratory course for senior/junior students studying computer engineering. Circuit level design and implementation of a complete microcomputer system, including microprocessor characteristics and interfacing, clock generator circuits for microprocessors, bus structures and design, input/output systems, memory systems and interfacing, static RAM, ROM and its programming, and low level programming of a microprocessor. Major laboratory project requires students to design, build, test and demonstrate a complete microcomputer based system. *Prerequisites:* Computer Science 222; Engineering 332, 333. Spring semester, even-numbered years. Prof. Leap.

ENGR 491 Senior Project in Engineering

3 credits. A demanding, and perhaps original, engineering project performed under close supervision of a faculty member. Progress reports, a final report, and a public seminar are required. *Prerequisite:* Permission of instructor. Staff.

Department of Political Science

Professors Gottfried, McClellan, Selcher
Associate Professors Beyerlein, McDonald (*Chair*)

Bachelor of Arts

Through the liberal arts blend of social science and the humanities which is political science today, the department seeks to assist the student in thinking clearly and logically about political questions facing the community, state, nation, and world. The department perceives three principal approaches to the discipline: the normative approach considers the values and ethical choices inherent in public policy; the empirical approach employs techniques to analyze how political systems function; the policy-oriented approach encourages the individual to responsible and informed action as citizen, government official, lawyer, or businessperson. A major in political science provides preparation toward a career in party or interest group politics, law, public administration, regional and urban planning, personnel and public relations, teaching, publishing, communications, the diplomatic corps, political research, and consulting, among others. Beyond its worth in career terms, the study of politics and government can lead to more effective pursuit of a person's political interests as a civic responsibility or as an avocation.

The department encourages students to pursue internship opportunities through its Capital Semester Internship or through those sponsored by other institutions. The department participates in Boston University's International and Washington Internship Programs, as well as the Washington, D.C.-based programs offered

through the Department of Communications.

The major in political science requires the following courses: Political Science 111, 115, 223, 224, 330, 351, and 498; an additional 18 credits of political science or approved non-political science courses; and one semester of a modern foreign language at the 112 level or higher. A student may choose one 9-credit concentration described below. General electives from the social sciences are encouraged.

More information on the Political Science program can be obtained at the Department's World Wide Web site: <http://www.etown.edu/home/mcdonald/pshome.html>.

For a *concentration in American politics and public policy*, a student must take three of the following courses: Political Science 313, 316, 318, 361, 362, 365, or 366. For a *concentration in public law and political philosophy*, a student must take three of the following courses: Political Science 311, 324, 326, 348, or Philosophy 315. For a *concentration in international politics and public policy*, a student must take three of the following courses: Political Science 245, 252, 341, 345, or 348.

A *minor in political science* requires 21 credits of course work. The following courses are required: Political Science 111, 115, 223 or 224, and 245 or 351. Nine additional credits in political science or approved non-political science courses must be taken. At least six of the credits must be at the 300 or 400 level in political science. A student may take these elective credits in one of the concentrations described above, but no concentration is required for the minor.

The department will accept the following non-political science courses as electives in the political science major or minor: English 283, Philosophy 305, and Sociology 331.

The department participates in the secondary school certification in social studies program, the forestry and environmental management major, and the environmental science major, offering a political science or a public policy concentration.

The Department of Political Science participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

111* American National Government

3 credits. (**Social World**) Analysis of the development of the U.S. Constitution, the federal system, civil rights and liberties; public opinion, political organizations, and elections; the presidency, Congress, federal bureaucracy and courts; federal government policies in economic and foreign affairs. Profs. Gottfried, McClellan.

115* Public Policy Making for the Future

3 credits. (**Values and Choice**) Analysis of the politics, institutional structures, and policies of state and local governments in the United States, with emphasis on the value and ethical implications in the choice and execution of public policies. *Students who have received*

credit for PS 112 may not enroll in this course. Prof. Beyerlein.

205* Values and Vision

3 credits. (**Values and Choice**) Study of the works and ideas of great social and political thinkers from the Ancients to the present. Justice, equality, community, freedom, feminism, environmentalism, and multiculturalism will be among some of the contemporary social, political, and cultural issues examined and debated. *Students who have received credit for Political Science 105* may not enroll in this course. This course for non-majors only.* Prof. McDonald.

223 History of Western Political Thought I: Ancient to Renaissance

3 credits. A survey of major political thinkers from Plato to Machiavelli. Self, politics, nature, order and freedom will be among the topics examined. Prof. McDonald.

224 History of Western Political Thought II: Enlightenment to the Moderns

3 credits. Major political thinkers in the West and their writings from Thomas Hobbes to the present. Self, politics, nature, order, rights and freedom will be among the topics examined. Prof. McDonald.

245* International Relations

3 credits. (**Foreign Cultures and International Studies**) Survey of the basic units of analysis, concepts, and principles of global international relations, with emphasis on the formulation and implementation of foreign policy in the context of political, economic, military, and cultural factors. Prof. Selcher.

252* Latin American Society

3 credits. (**Social World**) A study of Latin American socio-cultural formation in its historical, political, and economic dimensions, with comparison to and contrast with the United States' experience and consideration of current social issues. Prof. Selcher.

311 Constitutional Law

3 credits. History and development of the Constitution. Evaluation of leading Supreme Court decisions with emphasis on current decisions and cases in the light of history and of possible future trends. Fall 1996. Prof. Gliptis.

313 The American Presidency

3 credits. An examination of the development of the modern presidency as institution, symbol, and policy-maker. Topics to be covered include the nature of presidential power, the institutional presidency, relations with the public and governmental institutions in the U.S., and policy leadership in foreign and domestic affairs. Spring semester, alternate years. Spring 1997. Prof. McClellan.

316 The American Electoral Process

3 credits. Analysis of the process of recruiting, nominating, and electing candidates for national office in the U.S., the major participants in national elections, and the impact of elections on public policy-making. Fall 1996. Prof. McClellan.

318 Mass Media and American Politics

3 credits. Analysis of the role and influence of the mass media in American politics, emphasizing the development of the media industry and its relations with government, the political communications process, and the impact of the media on public opinion, elections, and public policy-making. Profs. Beyerlein, McClellan.

323 Politics Through Film and Literature

3 credits. A study of political novels and films and how these art forms have significantly shaped our understanding of politics. Democracy, totalitarianism, social inequality, and the prospects for nuclear war are among some of the topics examined. Prof. McDonald.

324 Modern Ideologies

3 credits. A survey of Marxism, socialism, anarchism, liberalism and conservatism, and an analysis of the motives and goals of their major proponents. Spring semester. Prof. McDonald.

326 American Political Thought

3 credits. Historical analysis of major American political thinkers from the Puritans to the present with special consideration given to the

founding principles of the American republic. Fall semester. Prof. McDonald.

328 Politics and Religion (Religion 328)

3 credits. Relationships between forms of government and religious attitudes and practices, with discussion of the influence of religion on political life and of religious interpretations of politics. Prof. Gottfried.

330 Research Methods (Sociology 330, Social Work 330)

3 credits. Techniques of empirical political research and the development of modern methods of analysis and data presentation in political science, with reference to contributions from other social sciences. A major research project on methodology is required. Fall semester. Prof. Beyerlein.

341 Decision Making Research for Foreign Investment

3 credits. Development and analysis of decision-making processes to be used in foreign investment, with quantitative and qualitative research techniques on macro and micro political and economic factors. *Prerequisite: Mathematics 151.* Prof. Beyerlein.

345 American Foreign Policy

3 credits. U.S. foreign relations since World War II, within an integrated analytical approach to identify the characteristic processes of decision-making and the patterns of those decisions over the decades. Prof. Selcher.

348 Public International Law

3 credits. Interactions among governments, organizations, and individuals in the world community regarding the sources and modern development of international law. Prof. Gliptis.

351 Comparative Politics

3 credits. A comparison and contrast of the political systems of selected foreign nations, emphasizing the historical development of party systems, political cultures, and executive-legislative relations. Fall semester. Prof. Selcher.

361 Public Administration

3 credits. A study of administrative organization, personnel administration, decision-making, and communications, with emphasis on the relation of administrative bureaus to the public, the executive office, the legislature, and the judiciary. Prof. McClellan.

362 Decision Making for the Public Sector

3 credits. An analysis of how public policy is composed, from both qualitative and quantitative perspectives and models, such as PERT-CPM networking, cost-benefit analysis, decision trees and tables, and multivariate analyses, to complement the qualitative factors in the decision making process. *Prerequisite: Mathematics 151.* Prof. Beyerlein.

365 Women and Public Policy

3 credits. Examination of formal and informal political systems and their effects on policies that attend to women's lives. Topics discussed are gender violence, feminization of poverty, workplace inequities, women's health issues, and lifestyle preference. Prof. Beyerlein.

366 Government and Business

3 credits. An examination of relations between the public and private sectors, and of specific public policies toward business such as antitrust, economic and social regulation, and trade. Prof. McClellan.

370-379 Special Topics

3 credits. Topical areas and problems of political science; subjects chosen in accord with student demand. Staff.

471 Capital Semester Internship

6 credits. Applied field experience in politics and public administration for state or local government agencies, the state legislature, and private political organizations. *Prerequisites: Permission of instructor, PS 111 and PS 115 for majors and PS 111 or PS 115 for nonmajors, junior or senior status.* Spring semester. Prof. McClellan.

480-489 Independent Study

Variable credit. Designed to offer independent study to advanced

students, making use of techniques of political science in specific problem areas not included in the Department's regular offerings. *Prerequisite: Approval of department chair and the Independent Study Committee.*

498 Senior Seminar

3 credits. An integrative, capstone course in political science, in which significant controversies in political theory and practice will be discussed and analyzed. *Prerequisite: Senior status or permission of instructor. Staff.*

Department of Psychology

Professors Dennis, Ellsworth
Associate Professor Rider (*Chair*), Teske
Assistant Professors Dillon, Lemley

Bachelor of Arts

The Psychology Department offers preparation for careers in human services and education, and preparation for graduate and professional training in clinical, experimental, and applied psychology, and related fields. The student learns the principles and theories of psychology as currently understood and acquires the ability to derive new principles. The student is required to participate in topical and methodological studies, and may participate in field experience and research.

The department offers the bachelor of arts degree. The department offers a minor in psychology with two tracks, one in general theory and methods; the other in child psychology. The department also offers a concentration for students pursuing the secondary education certification in social studies. See the interdisciplinary section of this catalog.

Courses required for the *bachelor of arts* degree are Psychology 105, 213, 218, and 402; three from the following six courses with at least one being 206, 222, or 241 and at least one being 221, 225, or 235; two courses from 317, 321, and 341; one course from 413 or 414; one course from 425 or 435, and 6 additional credits of psychology courses.

Courses required for the *general psychology minor track* are Psychology 105, 213, and eleven additional credits of psychology courses, at least six of which are to be in upper division (300/400) courses. Students are encouraged to tailor their selection of courses to their personal and career goals in consultation with a member of the psychology faculty.

Courses required for the *child psychology minor track* are Psychology 105, 225, 333, 334, and six additional credits of psychology courses.

The Department of Psychology participates in the

College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

105* General Psychology

3 credits. (**Social World**) An introduction to the principles of behavioral science, including consideration of methodology, theory, motivation, learning, personality, and sensory and perceptual processes. Staff.

108* Addictions

1 credit. (**Physical Well Being**) The psychology, pharmacology, neurophysiology, and psychotherapy of alcohol and drug addiction integrated into everyday life experiences. Staff.

206 Experimental Psychology

3 credits. Introduction to psychological theory, presenting the logic of theory formulation from its empirical base. Students are trained in formulating and evaluating theory, examining case studies of the rise and fall of selected theories. *Prerequisite: Psychology 105.* Spring semester. Prof. Ellsworth.

208* Health Psychology

3 credits. (**Natural World**) A study of physiology and neuro-chemistry of pain and stress related illness and those behaviors that contribute to illness. Consideration is given to philosophical questions of the mind-body relationship and the practical question of compliance with treatment regimens and the ethical question of self-determination. Spring semester. Prof. Ellsworth.

213 Research Methods

4 credits. The methods of psychology. Emphasis on research design and data analysis as the basis for evaluating psychological literature. Consideration is given to the philosophy of science. Hours: lecture 3, laboratory 2. *Prerequisite: Psychology 105.* Fall semester. Prof. Dillon.

218 Psychological Statistics

3 credits. Statistics in psychology, including percentiles, standard scores, t-tests, analysis of variance, correlation, regression and prediction, Chi square and other selected procedures. Emphasizes statistical reasoning, as well as application to psychological contexts. *Prerequisite: Psychology 213.* Spring semester. Prof. Dillon.

221 Abnormal Psychology

3 credits. A study of mental disorders including schizophrenic, substance abuse, anxiety, and psychosexual disorders. Research and theories regarding diagnosis, causes, and treatments are reviewed. *Prerequisite: Psychology 105.* Spring semester. Prof. Dennis.

222 Neuroscience

3 credits. Survey of the biological basis of psychological processes, including neurons and brain organization, the endocrine system, sensory processes, motor control, higher cortical functions and dysfunctions. Also, the basis of sleep, hunger, sex, emotion, language, and related topics. This course and Biology 202 may not both be taken for credit. *Prerequisite: Psychology 105.* Spring semester, 1997. Prof. Lemley.

225 Developmental Psychology

3 credits. Physical, perceptual, linguistic, intellectual, and social-emotional human development, covering the periods of infancy, childhood, adolescence, adulthood, and old age. *Prerequisite: Psychology 105.* Fall semester. Prof. Rider.

235 Social Psychology

3 credits. The processes by which the social environment influences human thought, feelings, and behavior, providing coverage of such topics as self-perception, impression formation, attitudes, social influence, aggression, relationships, inter-personal communication, and environmental transaction. *Prerequisite: Psychology 105.* Spring semester. Prof. Teske.

237* Psychology of Women

3 credits. (**The Social World**) A psychological approach to understanding both the behavior of women and the female experience. Topics include development across the lifespan; language and reasoning;

victimization; physical well-being; mental health; and stereotype-based conflicts. Fall semester. Prof. Rider or Dillon.

241 Sensory Psychology

3 credits. A survey of the visual, auditory, cutaneous, gustatory, and olfactory senses including the major theories and methods in sensory psychology. *Prerequisite:* Psychology 105. Spring, 1998. Prof. Lemley.

252 Psychology of Music

2 credits. Study of acoustics and the psychology of music as they relate to life and the music professions. An examination of the events and circumstances that occur in music and influence it. *Prerequisite:* music major or permission of instructor. Spring semester. Prof. Haines.

317 Learning and Motivation

3 credits. A study of major principles and theories of learning and motivation and the empirical research, animal and human, on which they are based, and a critical evaluation of the theories. *Prerequisite:* Psychology 206 or 222 or 241. Spring semester. Prof. Ellsworth.

321 Theories of Personality

3 credits. A critical comparison of the major theories of personality, including psychoanalytic, humanistic, behavioral, and social learning approaches. *Prerequisite:* Psychology 221 or 225 or 235. Fall semester. Prof. Teske.

333 Tests and Measurements

3 credits. A study of the theoretical and practical considerations of evaluation and psychological measurement. Emphasis is on test construction and interpretation. *Prerequisite:* Psychology 105. Spring semester. Prof. Dillon.

334 Exceptional Children and Youth

3 credits. A survey of the research and theories on the physical, intellectual, and social-emotional deviations of children, including an examination of mental retardation, learning disabilities, emotional-behavioral disorders, sensory impairments, and gifted children. *Prerequisite:* Psychology 225 or permission of instructor. Spring semester. Prof. Rider.

341 Human Cognition

3 credits. A study of the theoretical models, methods, and empirical findings involving mental abilities including perceiving, reasoning, problem solving, creativity, language and attention. *Prerequisite:* Psychology 206 or 222 or 241.

371-379 Special Topics

Variable credit. Study of topics not otherwise covered in the curriculum. Offered when student interest and faculty availability justify. *Prerequisite:* permission of instructor. Staff.

401 Counseling Psychology

3 credits. An introduction to counseling and therapeutic skills. Substantial class time is devoted to role-playing various counselor/counsee situations and an examination of the assumptions which students bring to the role of counselor. *Prerequisites:* Psychology 105 and permission of instructor. Prof. Dennis.

402 History and Systems of Psychology

3 credits. A study of major historical systems in psychology, including structuralism, functionalism, behaviorism, gestalt psychology, and psychoanalysis. *Prerequisite:* Psychology 105 and senior status. Fall semester. Prof. Dennis.

413 Research in Perception

4 credits. A study of the theories and empirical findings in the area of perceptual functioning with emphasis on visual processing. Students will conduct a research project. Hours: Lecture 3, laboratory 2. *Prerequisites:* Psychology 213, 218, and 206 or 222 or 241. Honors lab by permission of instructor. Fall semester. Prof. Lemley.

414 Research in Memory and Thinking

4 credits. The theories and empirical findings in memory and thinking. Students conduct a research project. Hours: Lecture 3,

laboratory 2. *Prerequisites:* Psychology 213, 218, and 206, or 222, or 241. Honors lab by permission of instructor. Spring semester. Prof. Ellsworth.

425 Research in Developmental Psychology

4 credits. An advanced study of major developmental theories and critical reviews of relevant empirical evidence. Students will conduct research projects related to a common theme in developmental psychology. Hours: Lecture 3, laboratory 2. *Prerequisites:* Psychology 213, 218, and 225. Honors lab by permission of instructor. Spring semester. Prof. Rider.

435 Research in Social Psychology

4 credits. A critical examination of selected areas of social psychological research with attention to crucial theoretical and methodological issues, and questions of social, cultural, and historical relevance. Students will participate in original research. Laboratory work will develop skills in design methodology, data analysis and interpretation. Hours: Lecture 3, laboratory 2. *Prerequisites:* Psychology 213, 218, and 235 or 321. Honors lab by permission of instructor. Fall semester. Prof. Teske.

475 Field Study

4 credits. Supervised training and experience in a professional setting related to psychology, generally for two afternoons a week, plus weekly meetings with the instructor. Placement depends on student interest and goals, and availability of professional setting. *Prerequisites:* Psychology 105 and permission of instructor. Graded Pass/No Pass. Prof. Dennis.

480-489 Independent Study

Variable credit. This course offers the mature student the independence to pursue educational experiences not otherwise available in the curriculum. *Prerequisite:* Approval of the Chair and the Independent Study Committee.

491-492 Research Practicum

Variable credit. Research in psychology under the close supervision of a faculty member. Topics for research are chosen in an area of interest to both persons. Offered by individual faculty-student arrangement. *Prerequisites:* Psychology 213 and permission of instructor. Staff.

Department of Religious Studies

Professors Clemens, Puffenberger
Associate Professors Bucher (*Chair*), Crocker

Bachelor of Arts

The Department of Religious Studies seeks to broaden the student's liberal education by pursuing creative ventures which often cross traditional disciplinary lines. It encourages students to think independently and critically, to express themselves clearly and effectively in written and oral communication, to make careful judgments based upon accepted moral values, and to understand our western religious heritage and its relation to other faith-traditions.

While committed to the Christian tradition, the department does not profess a single denominational consensus; it operates in the midst of a pluralistic religious milieu. Because of this diversity, the study of religion includes a variety of skills: historical investigation, textual criticism, ethical analysis, and cultural interpretation. To all of this must be added the essential ingredient of empathetic tolerance for the claims that

other individuals make regarding what they perceive as ultimate truth. In this light, our courses seek to sympathetically explore, compare, evaluate, and appreciate the varied religious insights of humankind.

The religious studies major is designed to serve as a preprofessional foundation for those students wishing to pursue study beyond the baccalaureate degree (i.e., graduate seminary training, social work, counseling, journalism, religious education, and other related fields).

A *major* in religious studies consists of twelve courses (36 credits). Majors must take Religious Studies 101 or 102; 165 or 215; 221 or 222; 490; and 24 additional religious studies credits (including at least 9 credits beyond the 200 level). Majors are required to take two semesters of either a modern language (e.g., French, German, Spanish, or Russian) or an ancient language (e.g., Biblical Hebrew, New Testament Greek).

A *minor* in religious studies consists of six courses (18 credits). Minors must take Religious Studies 101 or 102; 165 or 215; 221 or 222; plus 9 elective credits from the religious studies offerings.

Double majors may petition the department for a two course (6 credits) reduction in the overall major courses/credit requirement.

Minors in *peace and conflict studies* and *Anabaptist and Pietist Studies* are also available. Consult the list of "Interdisciplinary Programs" in this Academic Program for specific details.

The Department of Religious Studies participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

101* The Religious Literature of Ancient Israel

3 credits. (**Cultural Heritage**) An introduction to the literature of ancient Israel (i.e., the Jewish Tanakh/Christian Old Testament), focusing on developing skills of historical-critical exegesis. Prof. Bucher.

102* The Religious Literature of Early Christianity

3 credits. (**Cultural Heritage**) The literature of early Christianity, primarily that found in the New Testament. The course focuses on the development of the skills of historical-critical exegesis. Prof. Bucher.

105* Forms of Religious Experience

3 credits. (**Values and Choice**) The basic categories needed for an understanding of religious phenomena. Attention given to formal expressions and substantive experiencing, with emphasis upon mystical intuition. Myth, symbol, and imagery is of special interest. Prof. Clemens.

165* Introduction to Peace and Conflict Resolution

3 credits. (**Values and Choice**) The foundation course in the peace studies minor. Investigates causes of conflict and alternate modes of resolution, including mediation. Prof. Clemens.

203 New Testament Greek I

3 credits. A beginning study of the grammar and vocabulary of New Testament Greek, with the goal of reading the New Testament in its original language. Also develops skills of Greek exegesis. Offered on demand. Prof. Bucher.

204 New Testament Greek II

3 credits. A continuation of the study of New Testament Greek grammar and vocabulary. Readings will be taken from the Greek

New Testament and the Septuagint. Develops skills of Greek exegesis, including textual, lexical, syntactical, and rhetorical analysis. Offered on demand. Prof. Bucher.

205 Contemporary Religious Issues

3 credits. A survey of relevant problems and issues on the contemporary American religious scene. Primary emphasis is upon the cutting-edge issues in Protestantism, Roman Catholicism, and Judaism. Staff.

213* Religion and Gender

3 credits. (**Values and Choice**) Introduces students to contemporary theological discussions originating with feminist critiques of religion. Examines the way in which an androcentric perspective has influenced religious language, beliefs, and practices. Prof. Bucher.

215* Social Ethics

3 credits. (**Values and Choice**) The development of a community oriented ethic, beginning with self-actualization and concluding with the social values of equality and justice. The conceptual tools needed to analyze conditions of alienation and conflict. Prof. Clemens.

221* Western Religions

3 credits. (**Foreign Cultures and International Studies**) The major religious traditions of the Near East. A sympathetic and comparative examination of the basic history, scriptures, and faith-insights of Zoroastrianism, Judaism, Christianity, and Islam. Prof. Puffenberger.

222* Eastern Religions

3 credits. (**Foreign Cultures and International Studies**) An introduction to the major religious traditions of India, China, and Japan. A sympathetic and comparative examination of the basic history, scriptures, and faith-insights of Hinduism, Buddhism, Jainism, Sikhism, Taoism, Confucianism, and Shintoism. Prof. Puffenberger.

225 Anabaptist and Pietist Movements

3 credits. A study of the European historical and theological backgrounds of the Anabaptist and Pietist movements as they relate to the Church of the Brethren and other denominations within the context of "The Believer's Church." Staff.

230 Religion in America

3 credits. Surveys the rich diversity of religious America within the setting of the larger cultural and social experience. Emphasis on the uniquely American religious experience, as well as the identity and integrity of each separate tradition. Prof. Clemens.

240* Peace and Justice in Biblical Perspective

3 credits. (**Values and Choice**) This course examines some of the different perspectives on peace and justice found in the Hebrew Scriptures and New Testament and explores moral decision-making in response to situations of oppression and violence.

250* Citizenship and Conscience: Peace Church Dilemmas

3 credits. (**Values and Choice**) The course focuses on the ethical dilemmas surrounding citizenship, conscience, conscription, and peacemaking in religious communities. Using the historical peace churches (Quaker, Mennonite, and Brethren) as a case study, the course addresses ethical questions involving peacemaking which are relevant to a variety of religious traditions. Staff.

255 Business Ethics

3 credits. A critical analysis of contemporary ethical dilemmas in the context of American business practice. Utilizes normative ethical theory, Kohlberg's model of moral development, and case study analyses as a way to clarify competing ethical principles and to evaluate differing ethical judgments. Prof. Puffenberger.

266* Psychology of Religion

3 credits. (**Social World**) The course explores the relationship between psychology and religion, examining both subjects as examples of cultural systems. Emphasis is placed on reading of classic texts by William James, Sigmund Freud, and Carl Jung. Ways of exploring this subject through experimental methods are considered. Prof. Crocker.

315 Issues in Death and Dying

3 credits. A cross-disciplinary introduction to the mystery and meaning of death and its intimate relationship to life. Presupposes the notion that the best preparation for life is an in-depth study of its nonexistence. *Prerequisite:* permission of the instructor. Prof. Puffenberger.

317 Sociology of Religion (Sociology 317)

3 credits. An analysis of the role and function of religion and religious institutions in society; a study of religion as a social and cultural system. Prof. Kanagy.

325 The Great Mother Goddess and Patriarchy

3 credits. A conversational circle focusing upon the dual motifs of the nurturing mother and the controlling father deities. The content is both historical and topical, with special attention given to an analysis of the ideological bases and cultural values implicit in these two contrasting social systems. Prof. Clemens.

328 Politics and Religion (Political Science 328)

3 credits. Relationships between forms of government and religious attitudes and practices, with discussion of the influence of religion on political life and of religious interpretations of politics. Prof. Gottfried.

335 Renaissance and Reformation History (History 315)

3 credits. A study of the civilization of the Renaissance in Italy, with emphasis on Florence, Erasmus, and the Protestant Reformation of the sixteenth century. Staff.

351 Religion and Violence

3 credits. A study of the reasons for hatred and war as well as a survey of the tension between patriotism and faith as found in the traditional and quasi-religions of our day. Critically examines the ideas of just war, pacifism, non-violent resistance, etc. Prof. Puffenberger.

355 Bio-Ethics

3 credits. A critical examination of the ethical problems that arise in the practice of medicine and the pursuit of biological and medical research. Its case study approach wrestles with the task of determining not only how ethical principles apply, but how to order the principles when not all of them can be followed. Prof. Puffenberger.

357 The Church's Role in Social Change

3 credits. Combines historical and topical consideration of the church's posture toward the state and social change. An applied section views current tense situations in order to arrive at a tenable position on the church's role. Prof. Clemens.

364 Amish Society (Sociology 364)

3 credits. The history, culture, and social organization of the Old Order Amish. Sociological theories and models utilized by social scientists to describe and analyze the Amish will be presented. Special attention will be paid to recent social changes among the Amish. Staff.

370-379 Special Topics in Research

3 credits. Courses offered occasionally on the basis of interest and demand, as intensive studies of a selected religious theme or area of interest. Includes such topics as: Liberation Theology; Evangelical Theology; Esoteric Religions; Religious Cults in America; The Buddhist Tradition; Taoism and Zen; Prophecy and Apocalyptic Thought; Wisdom Literature; Islamic Thought; Eastern Scriptures; Biblical Hebrew; Power and Mediation; Jesus and the Gospel Tradition; Mysticism; etc. Staff.

465 Directed Research Project (for Peace Studies minors)

3 credits. A capstone seminar designed to integrate previous work and produce a major research paper. Staff.

470-479 Internship

1-3 credits. Designed to give the individual student the opportunity to pursue an experiential learning experience in an area of major interest under the guidance of a department member. Graded Pass/No Pass. Staff.

480-489 Independent Study

3 credits. Individualized study in area where courses are not normally offered. Research is done under the supervision of one or more faculty members. Open to Religious Studies minors by special request. *Prerequisite:* Approval of department chair and the Independent Study Committee.

490 Senior Research Project/Thesis

3 credits. A specialized study project required of all majors during their senior year. It is to be initiated by the student, supervised by one or more faculty members, and to culminate in a major research paper which will be presented orally to the departmental faculty. Staff.

Department of Social Work

Associate Professor Bergel

Assistant Professors L. Martin (*Chair*), G. Ricci

Bachelor of Arts

Social Work is a multi-faceted profession concerned with change both on an individual, community, national, and international level. Within the framework of a liberal arts tradition, Elizabethtown's social work program prepares the student for entry into professional social work practice or into graduate school. The program is based on an understanding of generalist practice which allows the graduate to choose from a wide range of social service careers.

The major in social work recognizes both the rural and urban environments of the Elizabethtown College community and seeks to prepare students for professional social work practice in either setting. The program is accredited by the Council on Social Work Education.

The program provides an extensive opportunity for field experience, beginning in the freshman year. The major culminates with 600 hours of field instruction during the student's senior year. Field experiences are arranged to meet the student's individual interest. Field experiences include but are not limited to such areas as child welfare, corrections, mental health, rehabilitation, health care, schools, and aging.

The *social work major* requires prospective students to apply for admission to the program. This application requires the following:

1. A formal interview with a social work faculty member where professional interests and abilities are explored.
2. A short essay describing the applicant's interest in the field of social work.
3. Formal admittance to Elizabethtown College.

This application procedure may occur before the student enters Elizabethtown College or at any time after admittance. Admittance into the program does not guarantee that the student will graduate with a degree in social

work. The advisor, in conjunction with the social work faculty, reserves the right to dismiss a student from the major on the basis of unprofessional behavior and/or academic performance. The student has the right to appeal the decision in the same manner as dismissal for academically related reasons.

In order to remain in the department, the student must obtain a minimum grade of C in all social work courses required by the major.

The *major in Social Work* requires the following courses: Biology 105, Sociology 101, 220, Psychology 105, Political Science 111, Economics 100, Mathematics 151, Modern Language 112, Social Work 151, 180, 233, 330, 367, 368, 369, 401, 470, 471, and 498.

A *minor in Human Services* is offered by the Department of Social Work. For details of the requirements, see the Interdisciplinary Programs section of the Academic Program. For more information, contact Prof. L. Martin.

The Department of Social Work participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

151* Social Welfare Issues in Contemporary Society

3 credits. (Social World) The historical, philosophical, and sociological perspectives of social welfare. Social work, as one profession involved in social welfare, is explored and compared to other professions. Ten hours of volunteer experience are required. Prof. Martin, Ricci.

180* Interpersonal Helping Skills

3 credits. (The Social World) Skills of providing effective human service, with emphasis on an understanding of human behavior and needs, the role of the helper, and various approaches to problem solving. Laboratory training. Prof. Bergel.

233* Human Behavior in the Social Environment

3 credits. (Social World) A study of the interrelationships of social systems, with particular emphasis upon the impact of the environment on human development. Special consideration of the influence of ethnicity, racism, sexism, and ageism upon behavior and the implications for human service delivery. Prof. Ricci.

330 Methods of Social Work Research (Sociology 330, Political Science 330)

3 credits. Instruction in understanding current research in social work and in applying this knowledge through the course project. *Prerequisite or co-requisite: Mathematics 151.* Fall semester. Staff.

339 Human Sexuality

3 credits. A study of socio-sexual behavior, attitudes and knowledge, including sexual socialization, theories of sexual orientation, survey and experimental research and selected items. Staff.

344 Aging: Social Response and Implications

3 credits. An examination of the aging process in our society. The emphasis is on the interface of the individual and the environment and the services, needs and institutions related to the elderly. Field trips to social service agencies. Staff.

355 Women in Society

3 credits. An inquiry into the past, present, and future status of women in our society. Topics include the socialization process, the relationship between gender and significant social institutions, and feminist theories that explain the needs and status of women. Prof. Bergel.

357 Child Welfare

3 credits. A study of ethnic, cultural and economic problems as they relate to children, the services available to combat those problems, and the legal and legislative aspects of child welfare. Prof. Martin.

366 Addiction and Society

3 credits. An examination of individual, family, and social implications of addiction in society and an exploration of social policies related to addiction. Fall semester. Staff

367 Generalist Social Work Practice I

3 credits. The first course designed to present theory and develop skills for generalist social work practice. The focus is the individual in both urban and rural areas. Field experience. *Prerequisite: Social Work 180. Social Work majors only.* Fall semester. Prof. Bergel.

368 Generalist Social Work Practice II

3 credits. The second course designed to present theory and develop skills for generalist social work practice. The focus is groups and families. Field experience. *Prerequisite: Social Work 367. Social Work majors only.* Spring semester. Prof. Bergel.

369 Generalist Social Work Practice III

3 credits. The final course designed to present theory and develop skills for generalist social work practice. The focus of this course is on organizations and communities. *Social Work majors only.* Spring semester. Prof. Martin.

371-379 Special Topics in Social Work

3 credit. Reading and discussion of topical areas of social work, including, but not limited to, evaluation research, family treatment, group treatment, services to minority groups, and industrial social work. Staff.

401 Social Policy

3 credits. Study of state and national social welfare policies and systems with emphasis on the relation of social problems, such as poverty, insecurity, and unequal opportunity, to social economic and political systems. *Prerequisites: Political Science 111, Economics 100.* Fall semester. Prof. Martin.

470 Field Instruction I

6 credits. Supervised field instruction for a least 200 hours in an agency. Student begins to assume responsibility with client systems in such ways as monitoring tasks, providing support, conducting group activities, and assisting the social worker with other professional responsibilities. *Social Work majors only.* Graded Pass/No Pass. Fall semester. Prof. Bergel.

471 Field Instruction II

12 credits. Supervised field instruction for at least 400 hours plus a weekly on-campus seminar. Students proceed from an "assistant" position to one of complete client responsibility under direct supervision. Roles students assume may include advocate, enabler, social broker, and program planner. *Prerequisite: permission of instructor; co-requisite: Social Work 498. Social Work majors only.* Graded Pass/No Pass. Spring semester. Prof. Bergel.

481-489 Independent Study in Social Work

Variable credit. Opportunity for advanced students independently to pursue study otherwise not available in the curriculum. *Prerequisite: permission of instructor and approval of the Independent Study Committee.* Staff.

498 Senior Seminar

3 credits. Final course integrating the theory from preceding courses with the professional experience of field instruction. A major project required. *Prerequisite: Social Work 470; co-requisite: Social Work 471. Social Work majors only.* Spring semester. Prof. Martin.

Department of Sociology and Anthropology

Associate Professor Lehr

Assistant Professors Kanagy, Wheelersburg (*Chair*)

Bachelor of Arts in Sociology-Anthropology

The program of this department provides for the study of interpersonal and intergroup relationships, and the growth, changes, structures, and processes of human society. The courses, reflecting the philosophical tradition of Elizabethtown College, are designed to prepare students for service in a complex society.

The department offers a major in sociology-anthropology that leads to a bachelor of arts degree. The major in sociology-anthropology emphasizes conceptual and applied approaches so that the student is prepared for a variety of graduate programs and career opportunities. The department also offers minors in sociology and in anthropology.

Students majoring in sociology-anthropology move directly into careers in business, government, criminal justice, survey and marketing research, religious settings, and in other fields where knowledge of society and human behavior is important. Some go on to graduate school seeking higher degrees in sociology, anthropology, public health, hospital administration, social planning, social work, law, and business administration.

The department also participates in the secondary education certification in social studies offering sociology-anthropology concentrations. Interested students should consult the detailed descriptions in the interdisciplinary section of this catalog.

A sociology-anthropology major requires Sociology 101, 204, 302, 330, 331, 498; Anthropology 111, 201, 360; one of the following: Anthropology 306, 307, 308, or Sociology 364; one anthropology elective, one sociology elective; and Mathematics 151*.

The anthropology minor requires 18 credit hours including Sociology 101; Anthropology 111, 201, 360; and two anthropology electives.

The sociology minor requires 18 credit hours of course work including Sociology 101, 204, 302, 330, and two sociology electives.

The Department of Sociology-Anthropology participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult the department chair.

Sociology

101* Discovering Society

3 credits. (**Social World**) An introduction to the social world which presents an understanding of society and its impact on the individual. Using the sociological perspective, an understanding of social reality, processes, and explanations. Prof. Kanagy.

204* Population and Global Issues

3 credits. (**Social World**) Critical analysis of scholarly and popular views about the relationship of societal processes (including fertility, mortality, and migration) to major social problems (e.g., land degradation, food and water shortages, energy development, and sustainable growth) from the perspectives of sociology and social demography. Prof. Kanagy.

215 Criminology

3 credits. Sociological approaches to the study of crime, with emphasis on current sociological theory and research; special consideration of the judicial system and penology. Alternate fall semesters. Prof. Suknaic.

217 Introduction to the American Criminal Justice System

3 credits. An overview of the criminal justice system in the United States. It examines law, policing, lawyers, judges, court processes, etc. Fall semester, alternate years. Prof. Suknaic.

220 Race and Ethnic Relations

3 credits. Study of racial and cultural minorities in the United States, and their relationship with dominant groups. Includes study of discrimination, prejudice, racial myths, and methods of reducing intergroup tensions. Staff.

265* Introduction to Anabaptist and Pietist Groups

3 credits. (**Social World**) An introduction to the history, beliefs, and social organization of Anabaptist and Pietist groups. Primary attention is given to the North American experience of the Brethren, Mennonites, Amish and Hutterites. Twentieth century cultural and social changes are a special focus of the course. Prof. Schlabach.

301 Social Issues

3 credits. A survey of major social issues, including alienation, addiction, crime, and poverty. Implications for public policy are stressed. Staff.

302 Sociological Theory

3 credits. An examination and analysis of the development of the major classical and contemporary theoretical paradigms in sociology, with an emphasis on examining key concepts and how these have been applied in sociological research. *Prerequisite: Sociology 101.* Fall semester. Prof. Lehr.

305 Marriage and the Family

3 credits. A study of the theoretical frameworks for the study of marriage and family patterns and the application of these frameworks to premarital, marital, postmarital and nonmarital aspects of family life in our society. Alternate years. Prof. Kanagy.

317 Sociology of Religion

3 credits. An analysis of the role and function of religion and religious institutions in society; a study of religion as a social and cultural system. Prof. Kanagy.

330 Methods of Social Research

3 credits. Basic procedures of sociological research, including research design, sampling, measurement, and data analysis. *Prerequisite: Sociology 101.* Fall semester. Prof. Kanagy.

331 Social Statistics

3 credits. Basic introduction to the study of statistical procedures of social research and analysis, with emphasis on reasoning with data. *Prerequisites: Sociology 330 or Political Science 330 or Social Work 330 and Mathematics 151.* Spring semester, alternate years. Prof. Kanagy.

342 Modern Corrections

3 credits. An overview of the origins, processes, organization, and contemporary trends of corrections for juveniles and adults, including an examination of current issues and alternatives to correctional policies. Alternate spring semesters. Prof. Suknaic.

352 Juvenile Law and Justice

3 credits. An analysis of juvenile crime, delinquency theory, juvenile law, and the components and processes of the juvenile justice system. Spring semester, alternate years. Prof. Suknaic.

360 Organizations in Modern Society

3 credits. An examination of the structure, processes, and cultures of formal organizations and their impact on society and individual behavior. Topics include conflict within and between organizations, the development of interorganizational networks, organizational change, and alternatives to bureaucracies. Staff.

364 Amish Society

3 credits. An introduction to the history, culture and social organization of the Old Order Amish. Sociological theories and models utilized by social scientists to describe and analyze the Amish will be presented. Special attention will be paid to recent social changes among the Amish. Staff.

371-379 Special Topics in Sociology

3 credits. Readings and discussion of topical areas of sociology. Topics may include, but not be limited to, the following: evaluation research, population, social inequality, social movements, and political sociology. Staff.

471 Internship

Variable credit. Applied field instruction in a subfield of sociology chosen to meet the needs of the student. Graded Pass/No Pass. *Prerequisite:* permission of instructor. Staff.

481-489 Independent Study in Sociology

Variable credit. Offers to advanced students the opportunity for independent study, making use of sociological approaches, in areas not included in the regular offerings within the Department. *Prerequisite:* approval of instructor and the Independent Study Committee. Staff.

498 Senior Seminar

3 credits. The seminar is an integrative and capstone course. Seniors engage in peer discussion and criticism of theoretical, ethical, and practical issues in sociology. The course requires a senior thesis paper that is presented and defended in a public setting. *Prerequisite:* permission of instructor. Spring semester. Staff.

Anthropology

111* Understanding Human Cultures

3 credits. (Foreign Cultures and International Studies) A comprehensive survey of the peoples and cultures of the world with special emphasis upon four interrelated cultural systems: knowledge, technology, social organization, and ideology. Staff.

201* Physical Anthropology

3 credits. (Natural World) An introductory course in the study of human beings as physical organisms, their place in nature, their biological development and differentiation, and their early cultural attainments. *Prerequisite:* one 100-level Natural World course. Staff.

202 Cultural Anthropology

3 credits. An introductory course in the study of culture, its nature and characteristic features, with special attention to language, kinship, and religious systems, including a survey of the theories of culture and the methods for studying it. Prof. Lehr.

306 Indians of North America

3 credits. A selective survey of native American groups, past and present, with particular attention given to the prehistoric background,

the development of modern aboriginal lifestyles, and contemporary social problems. Staff.

307 Ethnogeography of Africa

3 credits. Ethnographic and cultural analysis of the folk background and contemporary customs of the peoples of sub-Saharan Africa with special attention to the problems of culture change. Prof. Wheelersburg.

308 Ethnogeography of Latin America

3 credits. Ethnographic and cultural analysis of the folk background and contemporary customs of the peoples of Latin America with special attention to the problems of culture change. Prof. Lehr.

360 Cultural Change

3 credits. An examination of how human societies evolve over time, focusing on the sources, patterns, and directions of change. Particular emphasis on the way social institutions, such as the family, change in response to economic development, new technology, and urbanization. Spring semester, alternate years. Prof. Wheelersburg.

371-379 Special Topics in Anthropology

3 credits. Readings and discussion of topics in anthropology chosen in accord with the needs and interests of the participants. Topics will include, but not be limited to, the following: archaeology, forensics, anthropological theory, and the cultural history of Mexico. Staff.

375 Archaeology Field School

9 credits. A cooperative program with the State Museum of Pennsylvania designed to provide students with training in excavating techniques, record-keeping, mapping, artifact identification, processing, cataloging, and classification. Requirements include discussing assigned readings and performing laboratory work, in addition to the field investigation. Sites will vary, but will focus on historic sites in Pennsylvania. Summer. Staff.

471 Internship

Variable credit. Applied field instruction in a subfield of anthropology chosen to meet the needs of the student. *Prerequisite:* permission of instructor. Graded Pass/No Pass. Staff.

481-489 Independent Study in Anthropology

Variable credit. Offers to advanced students the opportunity for independent study, making use of anthropological approaches, in areas not included in the regular offerings within the Department. *Prerequisite:* approval of instructor and the Independent Study Committee. Staff.

Spanish

See Department of Modern Languages, page 52.

Theater

See Department of Fine and Performing Arts, page 42.

Interdisciplinary

Programs

Biology/Allied Health

Bachelor of Science

The College offers cooperative programs with Thomas Jefferson University, University of Maryland at Baltimore, and Widener University. These programs lead to a bachelor of science degree from Elizabethtown College and the master of science degree in physical therapy from Thomas Jefferson University, University of Maryland, or Widener University.

In these programs, the student spends three years at Elizabethtown College fulfilling the general education core, the pre-physical therapy curriculum, and the requirements of the biology major. If accepted by the cooperating institution, the student spends three more years at either of the above institutions.

After completion of four years (three at Elizabethtown and one at the cooperative school), so that the semester credits total at least 125, the student will be awarded the bachelor of science degree in biology from Elizabethtown College. After the student fulfills the remainder of the professional upper division program of clinical experience, the cooperative institution will award the master of science in physical therapy.

The specific requirements of the biology department are: Biology 111, 112, 201, 202, 211, and 212; 3 chemistry courses including 113 and 114; Physics 103 and 104; Mathematics 121 or 151. All allied health majors should consult closely with Dr. Robert Heckman to insure that courses being taken fulfill other specific requirements of the institution to which the student plans to transfer.

If the student elects to remain at Elizabethtown College for his or her senior year, the specific requirements in addition to those above are: Biology—one course from 313-313L, 317 or 318; one course from 321, 331, or 332; 412; and one additional biology elective.

The College also offers cooperative programs with Thomas Jefferson University in other allied health areas, including cyto-technology, cytogenetics technology, diagnostic imaging, laboratory sciences, nursing and occupational therapy.

Admission to Thomas Jefferson is by application and is based on an evaluation of a student's undergraduate record, letters of recommendation and interviews.

Students are not limited to the cooperative schools. Other allied health programs at other institutions of higher education may be used by the student to transfer

credits back to Elizabethtown College. However, these programs need to be approved by the Biology Department and by the Registrar prior to the transfer of credit.

For further information, contact Dr. Robert Heckman of the Biology Department.

Premedical Primary Care Program

Elizabethtown College and the Pennsylvania State University College of Medicine offer a special program to selectively admit students seeking to pursue careers as primary care physicians. This program gives these students the option for automatic matriculation to the Pennsylvania State University College of Medicine upon the completion of its B.S. degree requirements.

Criteria for acceptance:

1. Students must rank in the top 10 percent of their high school graduating class.
2. A minimum score of 1250 on the Scholastic Aptitude Test (SAT).
3. Students must have completed (a) three years of natural sciences including biology, chemistry, and physics and (b) mathematics through trigonometry (calculus is recommended).
4. Admission to the program will normally be weighted in favor of students residing in rural and/or medically underserved areas of Pennsylvania.
5. Students' experiences in human service activities will be considered in determining admission to the program.
6. Students seeking admission to the program should provide a statement as to why they wish to practice in a rural and/or medically underserved area and why they have an interest in primary care.
7. Admission to Elizabethtown College will be determined by the director of admissions. Admission to the Primary Care Program will be the responsibility of Elizabethtown College and the Pennsylvania State University College of Medicine. Initial screening will involve review of the criteria listed above by the Health Professions Advisory Committee of Elizabethtown, including a personal interview. Worthy candidates will then be interviewed by representatives of the College of Medicine. Those deemed to have excellent potential for a career in primary care will be simultaneously accepted for the Premedical Primary Care Program at Elizabethtown as well as be granted provisional acceptance to the College of Medicine. Final acceptance to the College of Medicine is contingent upon satisfactory fulfillment of yearly criteria (see below).

Criteria for continued participation in the Premedical Primary Care Program and acceptance to the Pennsylvania State University College of Medicine:

1. While a student may major in any of a number of areas, the student must accumulate a minimum GPA of 3.5 in biology, chemistry, and physics courses and an

overall GPA of at least 3.5 by the end of their junior year of college.

2. Students must complete two Family Practice Practicums sponsored by the Norlanco Medical Center in Elizabethtown and/or the Pennsylvania State University College of Medicine through (a) its Primary Care Scholars Program or (b) other primary care experiences coordinated by the Department of Family and Community Medicine. Participants must receive a positive evaluation by supervising physicians.

3. Students must continue to exhibit "primary care potential" through volunteer work in human services, course selection, and/or show motivation to work in rural areas or underserved communities as a primary care practitioner.

4. Yearly criteria for continued participation in the Premedical Primary Care Program:

During the freshman, sophomore, and junior years students must demonstrate continued interest in primary care by volunteering in human services, selecting humanistic courses, and participating in a variety of extracurricular activities that involve interaction with other people.

Specific criteria by year are as follows:

a. Freshman Year:

-Minimum GPA of 3.3

b. Sophomore Year:

-Minimum GPA of 3.4

-Internship in Primary Care sponsored by the Norlanco Medical Center in Elizabethtown or the Pennsylvania State University College of Medicine, with review and positive evaluation by the supervising physician(s).

c. Junior Year:

-Minimum GPA of 3.5

-A second internship in Primary Care sponsored by the Norlanco Medical Center or the Pennsylvania State University College of Medicine, with review and positive evaluation by the supervising physician(s)

-Summative review and positive recommendation by the Health Professions Advisory Committee at Elizabethtown

-Completion of the MCAT examination is required for admission to the Pennsylvania State University College of Medicine. Students granted a provisional acceptance to the College of Medicine through the Premedical Primary care Program should take the examination during April of the Junior year of college. Although a specific score is not required, students are expected to perform at or above the mean score in each section when compared with the previous College of Medicine entering class. Students having one or more scores below this level will receive individualized counseling as to additional courses or other academic work that may be beneficial during the final year of college.

d. Senior Year:

-An AMCAS application is completed

-Applicants are expected to maintain a high level of academic achievement

Premedical and Other Health Professions Programs

James L. Dively, *chair, Health Professions Advisory Committee*

Members: John A. Campbell, Jr., Jack L. Hedrick, Frederic E. Hoffman, J. Robert Heckman

Training for premedical and related disciplines, such as dentistry, osteopathic medicine, veterinary science, optometry, and podiatric medicine, may be accomplished through several routes. For ease of presentation, from this point on, the term premedical will refer to all health professions, schools, and/or students. *The biology premedical* student prepares for medical school through specific requirements that are the same as those for the biology major. (See page 21) A second route is the *bachelor of science degree* in biochemistry (See page 21). *Additional routes* of potential interest include a major in most other departments, with sufficient concentration in basic sciences.* Most medical schools, however, find that those students who are very well prepared in biology and chemistry make the most attractive candidates, and these majors comprise the overwhelming majority of students accepted. During a student's first year at Elizabethtown College, he or she will follow a curriculum similar to that outlined below, with minor variations depending upon several factors, such as the starting level in English and mathematics. After completion of the freshman year, students should choose an academic major and follow the curriculum for that major in consultation with the appropriate academic advisor and the Health Professions Advisory Committee.

A close working relationship exists between the premedical student and the faculty members who monitor and evaluate the student's academic growth. Five faculty members are members of *Elizabethtown's Health Professions Advisory Committee*.

The Committee serves the following functions: (1) to work jointly with premedical students and their major advisors to ensure that all prerequisites are met for entry into schools of medicine; (2) to advise students on registration and preparation for medical school admissions tests; (3) to assist students in the preparation and submission of applications to medical schools; (4) to draft a composite letter of evaluation and endorsement for worthy candidates and to forward this information to the appropriate medical school admissions committees; (5) to offer assistance in preparing for medical

* [In order to achieve a minimum level of understanding of the principles and vocabularies of the sciences basic to medicine, medical schools generally require one year of biology, two years of chemistry (through organic chemistry), and one year of physics. Certain schools may also require math competency obtained by completing statistics and/or calculus courses.]

school interviews; (6) to solicit and collect literature that will aid students to plan financially for their medical training; and (7) to maintain statistics on medical school placement for advising and administrative purposes.

The premedical student should introduce him or herself to the Health Professions Advisory Committee early in the freshman year and formally register with the Committee shortly after declaring a major. This will normally occur during the fall semester of the sophomore year. Forms for this registration are available from Dr. Dively. At this time, students will find it prudent and beneficial to discuss future course scheduling, long-term career plans, and related matters with Committee members.

Most students need to register for *standard admissions tests*, such as the MCAT, during the early part of spring semester, junior year. After obtaining registration materials, students will seek the Committee's advice regarding the most effective methods of completing their preparation for these extremely important examinations. The majority of the tests are administered during the spring, although the Committee may recommend that a student retake an examination during the summer or fall testing period in an event of initial low scores.

During April of the junior year, the Committee will hold interviews with those students who will be seeking admission to health profession schools. The Committee will use information obtained from the interview to write the letter of evaluation. The Committee will also use information from the student's registration form and from letters of recommendation and endorsement that the student has solicited from three to five individuals, including at least three faculty members. After the Committee receives letters of recommendation and completes the personal interview with the student, the Committee will determine whether or not to prepare a written endorsement of the candidate. If such a letter is written, it will be forwarded, upon receipt of written notice from the student, to the appropriate medical school admissions committee. If the Committee does not choose to endorse the student, the student may solicit other individuals to write letters of evaluation, completing the application process him or herself.

Each spring semester the Committee receives *application service materials* for the various health professions. These materials are distributed to junior premedical students who are expected to complete them during the summer between the junior and senior academic year. Application service materials are normally submitted by the middle of August. After the student has completed and submitted applications to medical school, the Committee will offer assistance in preparing students for medical school interviews. Generally, interviews at medical schools will be held during the fall semester of the senior year. Thus, it is imperative that premedical students notify the Committee of changes in status of their applications so that the Committee can plan for this important stage of the admission process.

The Committee believes that a strong positive recommendation and endorsement, combined with adequate

scores on the requisite standard examinations and outstanding classroom performance, will put the candidate in an excellent position in the highly competitive admissions processes. The *College's placement record* indicates that this belief is well founded. Better than three-fourths of all Elizabethtown College applicants have been accepted (exceeding twice the national average), entering programs of excellent reputation, including those at Jefferson Medical College, Temple University School of Medicine and Dentistry, Philadelphia College of Osteopathic Medicine, Hahnemann Medical College, Pennsylvania State University College of Medicine (Hershey), University of Pittsburgh School of Medicine and Dentistry, University of Pennsylvania School of Veterinary Medicine, and Pennsylvania College of Optometry.

For further information, contact Dr. James L. Dively, chair, Health Professions Advisory Committee.

Representative First-Year Courses

Credits	Fall Semester
3	Freshman Seminar
4	Biology 111
4	Chemistry 113
3	Power of Language*
4	Mathematics 121**

Credits	Spring Semester
3	Biology 112
4	Chemistry 114
4	Foreign Cultures/International Studies**
4	Mathematics 122**
1	Physical Education

*Placement tests determine starting level.

**Required in chemistry option.

Primary Care Pre-Admissions Program

Elizabethtown College is one of a select group of public and private colleges that is participating in a Primary Care Pre-Admissions Program (PPP), sponsored by the Pennsylvania State University College of Medicine at the Milton S. Hershey Medical Center. The program was established to encourage undergraduate students to pursue careers in internal medicine, family practice, and pediatrics. This program was developed to attract high quality students who have a genuine interest in primary health care. Various programs introduce students to Penn State's primary care mission; identify students who have primary care potential; and provide students with mentoring, primary care, and pre-clinical experience.

Specifically, the Pennsylvania State University College of Medicine offers the following: (1) A *Primary Scholars Program*, in which students spend two weeks at Hershey participating in lectures, seminars, and clinical

experiences; (2) a *Primary Care Early Acceptance and Admissions Program*, through which students can apply for admission to the Pennsylvania State University College of Medicine at the end of the sophomore year of college; (3) a *Primary Care Summer Academic Program* for minority students and students from rural and medically underserved areas, through which the participants pursue studies in basic sciences and gain clinical experience; and (4) a *Primary Care Mentoring Program*, through which students are assigned a mentor, a preceptor, or faculty affiliate of the Pennsylvania State University College of Medicine, who is located in the same town or regions as the student.

To apply for acceptance into programs, students must meet criteria established by the Pennsylvania State University College of Medicine and apply through the Health Professions Advisory Committee at Elizabethtown College. The Pennsylvania State University College of Medicine selects those students who will benefit from specific components of the the program.

For further information, contact Dr. James L. Dively.

Forestry and Environmental Management

Bachelor of Science

The College offers a cooperative program with Duke University which leads to a bachelor of science degree from Elizabethtown College and a Master of Forestry or Master of Environmental Management from Duke University. The student who undertakes this major gains a wide exposure to the liberal arts by fulfilling the College's Core Program in addition to courses in the student's major. The student also gains professional training at Duke in such areas as forest productivity, forest management science, resource ecology, water and air resources, resource policy and economics, or other individually tailored programs.

In this program, the student spends three years at Elizabethtown College, fulfilling the Core Program requirements and earning at least 101 credits before transferring to Duke. The student spends at least two years at Duke's School of the Environment. In the first year at Duke, the student completes the undergraduate degree requirements (24 credits) and is awarded the bachelor of science degree from Elizabethtown. After an additional two or three semesters, Duke awards the degree of Master of Forestry or Master of Environmental Management. The program leading to a master of forestry degree from Duke University is accredited by the Society of American Foresters.

In order to prepare students for the professional program at Duke, the College offers a preforestry and environmental management program with major and

minor concentrations in biology, business, or political science. While any undergraduatemajor can be considered for admission to Duke, the student should take at least one year of biology, mathematics, and economics.

Admission to Duke is by application and is based on an evaluation of a student's undergraduate record, Graduate Record Examination scores, letters of recommendation, and interviews. To effectively compete for acceptance, the applicant's grade point average should be at least 3.5.

There are variations of the schedule herein described. For further information, contact Prof. Ronald L. Laughlin of the Biology Department.

Majors must complete all Elizabethtown College Core Program requirements. Within the Core areas, the following courses should be taken:

Mathematical Analysis (three credits): Mathematics 151 or 121. If 151 is not taken for core, it is strongly recommended as an elective. If 121 is not taken for core, Math 117 will satisfy the calculus requirement, but not core.

Natural World (eight credits): Biology 111 and Chemistry 101.

Each student completes a major concentration in either biology, business, or political science, and two minor concentrations totaling 18 credits in the other two areas, with at least six credits in each area.

Biology: Major concentration recommendations are Biology 111, 112, 313, 313L, 321; two courses from Biology 211, 212, 235, 331, 332, and 347; and Chemistry 101, and 105. Minor concentration recommendations are Biology 111, 112, 331; if only six credits are elected, they should be Biology 111 and 112.

Business: Major concentration recommendations are Accounting 107, 108, Economics 100, 102, Business Administration 265, 330, 331 and Computer Science 120. Minor concentration recommendations are any combination of Accounting 107, Economics 100, Computer Science 120, Business Administration 265. Economics 100 is, however, strongly suggested.

Political Science: Major concentration recommendations are Political Science 111, 112, 361, 366, 471. Minor concentration recommendations are Political Science 361, 471; if only six credits are elected, they should be Political Science 471.

Political Philosophy Major

Anthony Matteo, *director*
Professor Gottfried and Associate Professor McDonald

This interdisciplinary major focuses on the origins, development, and theoretical foundations of Western political philosophy. Combining selected courses from political science, philosophy, and other liberal arts disciplines, this major is especially recommended for students who either are considering careers in law or higher education, and/or desiring an intellectually challenging traditional liberal arts education.

Courses in political science focus on issues such as justice, order, rights, the human condition, and the purposes and ends of government. The philosophy courses explore the metaphysical, epistemological, and ethical assumptions informing the competing concepts of human nature and society. Students are encouraged to examine the implications of political philosophy on contemporary social and political movements.

For students who are interested in law school, a strong advisory component in terms of proper course work, relevant extracurricular activities, and preparation for the LSAT examination is offered.

A major in political philosophy requires 24 credits; specifically, Economics 100; Philosophy 115, 201, 240, 490; Political Science 223, 224; 3 credits chosen from History 215, 216, 315, 316, or 411; and modern language at the 112* level or higher. Twelve credits (4 courses) of electives are required from the political science and philosophy departments with a minimum of one course per department, chosen from the following: Political Science 324, 326, 328, Philosophy 255, 213, 305, or 470-479. Philosophy 470-479 will provide students with practical experience in a law-related field under the guidance of a faculty member teaching in the political philosophy program.

Pre-Law Program

Chair of the Pre-law Committee: W. Wesley McDonald
(Political Science).

Members of the Committee: Pre-Law Advisor, George Gliptis (Business) Paul Gottfried (Political Science), Anthony Matteo (Philosophy), Cynthia Beyerlein (Political Science), Leota Dye (Communications), Conrad Kanagy (Sociology), Richard Stone (Business), Thomas Winpenny (History), Dana Mead (English).

Because the training of a pre-law student may be accomplished in almost any academic discipline, such as English, history, political science, philosophy, or business, a committee has been established to assist the pre-law student during his undergraduate years.

The Pre-Law Committee works with the pre-law student and the student's major advisor to ensure that a reasonable and sound course of study is followed that is acceptable for entry into a school of law. The committee aids the student in selecting a suitable school, and advises the applicant on the registration and the preparation for the Law School Admissions Test (LSAT). The

committee guides the students in preparation and submission of applications and supervises the requests for letters of recommendation for worthy candidates.

In order to create the most effective curriculum, the pre-law student should introduce himself to the Pre-Law Committee early in the freshman year to discuss future course scheduling and long-term plans.

The Pre-Law Committee also supervises the activities of the Law Club and works closely with the College's mock trial team which participates in regional and national mock trial tournaments; both activities are highly recommended for pre-law students. Participants in the mock trial competitions are urged to take the following one credit courses, Mock Trial I and II, which are taught in the spring and fall semesters. These courses prepare students to participate in intercollegiate tournaments to be held in the spring semester. The courses are taught by a practicing attorney.

Over the years Elizabethtown graduates have been accepted and/or attended a wide range of schools of law. Among these are: American University, University of Baltimore, Boston University, Case Western Reserve University, Catholic University, University of Dayton, Dickinson School of Law, Duquesne University, George Washington University, University of Georgia, University of Miami, University of Maryland, University of Pennsylvania, University of Pittsburgh, University of San Diego, University of San Francisco, Stetson University, Temple University, Tulane University, Vermont Law School, Washington and Lee University, Widener University and College of William and Mary.

More information on the Pre-Law Program can be obtained at the Pre-Law World Wide Web site: <http://www.etc.edu/home/mcdonald/prelaw.html> or by e-mailing Professor McDonald at mcdonaldw@acad.etc.edu.

Social Studies Certification

Bachelor of Science

In the social studies certification program, the student acquires a mastery of the various subject fields that are a part of a social studies curriculum. In addition, the program provides training in the techniques of teaching, along with actual teaching experience in a social studies classroom. Upon successful completion of the program, students are certified to teach social studies in secondary schools in Pennsylvania and, by reciprocal arrangements, in several other states.

The academic segment of the student's preparation calls for specified courses in economics, history, political science, psychology, and sociology/anthropology. This background enables the student to prepare for teaching in all areas classified as the social studies in secondary schools. The student concentrates in depth in one of the

areas. This concentration encourages thoroughness in understanding one area and also lays the groundwork for future graduate study in that subject.

Professional training in the skill of teaching is acquired through a college course on methods. The student explores both the theory and the practical strategies of teaching. Finally, the student spends a semester actually teaching social studies in a secondary school classroom under the careful supervision of a competent secondary school teacher and a college professional who offer criticism, advice, and encouragement.

For additional information, contact Dr. Robert Wheelersburg, the Social Studies Certification advisor.

Requirements for the social studies major are: Students must take one 24-hour major, and two courses in each of the four cognate areas. The courses must be selected from a list of approved alternatives and may be used to satisfy more than one requirement, including certain areas of emphasis in the Core program. A grade point average of 2.5 is required for admission to, retention in, and completion of the certification program.

The Social Studies Program participates in the College Honors in the Discipline program. For guidelines and details as to requirements, the student should consult with Professor Mumford.

Economics: The 24-credit major must include Economics 100, 102, and 18 elective credits in economics.

History: The 24-credit major must include History 115, 201, 202, 390, one European history course beyond 115; one non-United States, non-European history course, and six elective credits in history.

Political Science: The 24-credit major must include Political Science 111, 115, 223 or 224, 245, 330, 351, and six elective credits in political science.

Psychology: The 24-credit major must include Psychology 105, 206, 213, 221, 225, 235, 321, and one elective in Psychology.

Sociology-Anthropology: The 24-credit major must include Sociology 101, 204, 302, and 330; Anthropology 111, 201, 306, and 307 or 308.

General Science Certification

Bachelor of Science

Elizabethtown College offers a secondary education certification program in general science which is designed to lead to a general science teaching certificate in

secondary education with a major concentration in biology, chemistry, or physics. The program aims to develop a comprehensive background for teachers in order that they may be better qualified to teach science in the general science curricula of junior high and middle school programs. The requirements of each concentration include a broad exposure to the other sciences and to mathematics, as well as to the instruction and experience in teaching provided by the professional education sequence.

The specific requirements for each of the concentrations follow:

Biology: a minimum of 24 credits in biology which must include Biology 111, 112, 211 and 212, 313 and 313L; one course selected from Biology 235, 331, 332, 341, 347; one course selected from Biology 321, 324-324L; Chemistry 101*, 105*; Physics 101*, 102 or 103*, 104; two courses from Earth Science 111, 112, 215 or Physics 212; Mathematics 117 or 121, or 151; and Education 205, 230, 305, 310, 415, 473.

Chemistry: a minimum of 24 credits in chemistry which must include Chemistry 113 114, 213, 214; and eight hours from among Chemistry 116, 242, 323, 324, 326, 327, 343, 344, 352, 451; Biology 111*, 112; two courses from Earth Science 111, 112, 215 or Physics 212; Physics 101*, 102; Mathematics 101, 121, 122; and Education 205, 230, 305, 310, 415, and 473.

Physics: Physics 101, 102, 202, 221, 241, 321, and 353; one additional course in physics (except 212) or engineering; Biology 105*-105L*, and either 106*-106L* or 108*-108L*; Chemistry 101*, 105*; two courses from Earth Science 111, 112, 215 or Physics 212; Mathematics 101, 121, 122; and Education 205, 230, 305, 310, 415, and 473.

*Count towards **Natural World** Core Program requirement.

For further information, contact Dr. Frederic E. Hoffman of the biology department.

General Science Minor

The General Science minor offers students the opportunity for study of the natural sciences as a group, based on the view that the natural sciences, together, are the area of secondary interest for the student.

This minor is especially appropriate for, but not limited to, elementary education majors with aptitude and interest in the natural sciences. Although some students may wish to complete a minor in a separate science discipline, others may want a wider curricular

base and mix in the content they wish to study. The general science minor provides this while retaining unity and focus. Further, in addition to providing breadth of study of the natural sciences as a group, it allows for a measure of investigation in depth of a selected discipline.

The minor consists of 25 to 28 credits, including at least 11 credits which may be double counted for the Core Program.

For further information on the minor, contact Dr. Fred-eric E. Hoffman, clinical professor in science education.

The *minor in general science* requires seven courses:

Mathematics (4 credits)

Ma 121 Calculus I

Earth Science (3-4 credits)

ES 111 The Dynamic Earth
or ES 112 The Geology of Landscape
or ES 215 Meteorology

Physics (4 credits)

Phy 101 College Physics I
or Phy 103 General Physics I
or Phy 212 Astronomy

Chemistry (4 credits)

Ch 101 General Chemistry: Practical Principles
or Ch 105 General Chemistry:
Theoretical Principles
or Ch 107 The Chemistry of Life: Energy
or Ch 113 Organic Chemistry I

Biology (4 credits)

Bio 105/105L Principles of Biology w/Lab
or Bio 106/106L Genetics, Evolution,
and Man w/Lab
or Bio 108/108L Living with the Environment
w/Lab
or Bio 111 Introduction to
Biological Sciences

Two elective courses (3-4 credits each) in the same or different disciplines, chosen from any biology, chemistry, earth science, and physics *above* 100-level (or *at* 100-level if the elected course has a prerequisite in the same discipline).

Anabaptist and Pietist Studies Minor

The interdisciplinary minor in Anabaptist and Pietist Studies consists of 18 credits. The curricular model incorporates three types of courses: a required introductory course (3 credits); elective courses in a variety of disciplines (12 credits); and a capstone seminar research project (3 credits). Courses in the minor may not count

toward a student's academic major.

The introductory course Soc 265 is designed to orient students to the European historical and theological roots of the Anabaptist and Pietist movements. The elective courses, selected from specified courses in several disciplines, enable students to shape a personal program of emphasis which draws on the resources of three academic disciplines. The *capstone course* requires students to integrate and synthesize the insights from several disciplines in a major research writing project. At least two faculty members from differing academic disciplines will read and evaluate the research paper.

A committee of faculty representatives from the cooperating departments elects a chairperson who oversees the operation of the minor. Administrative responsibilities for the supervision of the minor resides with the chair of the Religious Studies Department.

For further information, contact Dr. Christina Bucher of the Religious Studies Department.

Minor Requirements

- A. One *required* introductory course (3 credits)
So 265 Introduction to Anabaptist and Pietist Groups
- B. Four *elective* courses from the following list (12 credits)

Rel 225	Anabaptist and Pietist Movements
Rel 230	Religion in America
Rel 250	Citizenship and Conscience: Peace Church Dilemmas
Rel 335/	
Hi 315	Renaissance and Reformation History
Rel/Soc 364	Amish Society
Soc 317	Sociology of Religion
- C. One *required* capstone directed study (3 credits)
Rel 465 Directed Research Project

Peace and Conflict Studies Minor

The interdisciplinary minor in peace and conflict studies consists of 18 credits. The curricular model incorporates three types of courses: required introductory courses (6 credits); elective courses in a variety of disciplines (9 credits); and a capstone, integrative seminar research project (3 credits). Courses in the minor may not count toward a student's academic major.

In order to provide students with adequate conceptual tools and conciliation skills, the program of study is multi-disciplinary in both method and instruction. The *introductory courses* orient students to basic concepts and approaches in Peace and Conflict Studies as well as the history of nonviolence. The *elective courses*, selected from specified courses in several disciplines, enable students to shape a personal program of emphasis which taps the

analytic resources of various academic fields. The *capstone course* requires students to synthesize concepts and knowledge from several disciplines in order to address a research problem of practical or theoretical interest. At least two faculty members, representing different academic fields, will read and evaluate the research paper.

A committee of faculty representatives from the cooperating departments elects a chairperson who oversees the operation of the minor. Administrative responsibilities for the supervision of the minor resides with the chair of the Religious Studies Department.

For further information, contact Dr. Christina Bucher of the Religious Studies Department.

Minor Requirements

- A. Two *required* introductory courses (6 credits)
- | | |
|---------|---|
| Rel 165 | Introduction to Peace and Conflict Resolution |
| Hi 221 | History of Nonviolence |
- B. Three *elective* courses from the list below, or other approved courses (9 credits). No more than two elective courses shall be chosen from any one department. At least two of the elective courses must be taken outside the student's major department.
- | | |
|---------|---|
| PS 245 | International Relations |
| Psy 235 | Social Psychology |
| Psy 321 | Theories of Personality |
| Rel 240 | Peace and Justice in Biblical Perspective |
| Rel 250 | Citizenship and Conscience: Peace Church Dilemmas |
| Rel 351 | Religion and Violence |
| Rel 379 | Power and Mediation |
- C. A required *capstone* directed study project designed to integrate previous work and culminate in a major research paper.
- | | |
|---------|---------------------------|
| Rel 465 | Directed Research Project |
|---------|---------------------------|

International Studies Minor

The International Studies minor comprises a cluster of foreign culture, language, and international affairs courses with a largely contemporary focus. Serving as a complement to the academic major, this minor provides the student with enhanced understanding of the conditions in the rest of the world which are making themselves felt in the daily lives of Americans. In addition to the general liberal arts goal of broadening students' horizons of awareness of other peoples and places, the minor offers a valuable complementary education for many career-oriented and preprofessional programs of study.

The Department of Business has an international business major and concentration. Details of these options can be obtained from Professor Jay Buffenmyer of that department.

The minor provides three principal categories of an international education: competency in a second language, knowledge of other cultures, and appreciation of global interdependence among nations.

For further information, contact Dr. Wayne A. Selcher, director of international studies and program advisor.

The structure of the minor consists of:

1. *Foreign language competency*: six credits in oral and written communication through language and culture beyond the Modern Language 112 level, with an oral proficiency rating of Intermediate High/Level I + on the ACTFL/ETS scale.
2. *Three required foundation courses* (9 credits):

An 111*	Understanding Human Cultures
Ec 307	International Economics+ or
Ec 311	Economic Development or
Ec 312	International Political Economy
	(only one economics course may be selected)
PS245*	International Relations
3. *Four elective courses* (12 credits) to be chosen from this list:

An 202	Cultural Anthropology
An 307	Ethnogeography of Africa
An 308	Ethnogeography of Latin America
BA 251*	Cross Cultural Understanding and Interaction
BA 317	International Marketing
BA 327	International Finance
BA 337	International Legal Environment
BA 367	International Management
Com 372	International Communications
Ec 307	International Economics+
Ec 308	Comparative Economic Systems+
Ec 311	Economic Development
Ec 312	International Political Economy
Fr/Ge/Sp 311	Making of Modern Society
Sp 312	Language for the Professions
Hi 205	Modern Far East
Hi 216*	Modern Britain
Hi 218*	Europe in the Twentieth Century
Hi 220*	History of the Soviet Union
Hi 227*	History of Africa
Hi 323	History of China
Hi 324	History of Japan
Hi 328	Modern Africa
Hi 403	A History of United States Foreign Relations
Mu 205*	Music of Non-Western Cultures
PS 252*	Latin American Society
PS 341	Decision Making Research for Foreign Investment

PS 345	American Foreign Policy
PS 348	Public International Law
PS 351	Comparative Politics
Rel 221*	Western Religions
Rel 222*	Eastern Religions

Psy 401	Counseling Psychology
Soc 305	Marriage and the Family
Soc 342	Modern Corrections
PS 361	Public Administration
PS 362	Decision Making for the Public Sector
OT 320	Health Care Systems
OT 325	Sign Language (2 credits)

Also: 370 courses which are approved by the International Studies Committee.

+Prerequisite: Ec 100

In developing the minor, the student can choose electives to develop a thematic emphasis, such as regions of the world (e.g., Asia, developing nations), relations among nations, or a comparative or disciplinary perspective (e.g., on civilizations, religions, economics or politics). Study abroad is strongly encouraged. The director of International Studies (Dr. Wayne A. Selcher) will help the student with course selections. Completion of the minor is indicated on a student's transcript.

All courses receive three credits upon successful completion, unless otherwise noted.

Human Services Minor

A minor in Human Services, consisting of a minimum 18 credits, is available. The minor provides students the knowledge, values, and skills to explore society's social problems and the intricate social welfare system designed to assist people in need. It also provides the student with an overview of human behavior, social problems, and the development of American social welfare institutions.

All students, except social work majors, may pursue this minor.

For further information, contact Professor Link Martin, Chair, Department of Social Work.

Minor Requirements (9 credits):

SW 151	Social Welfare Issues in Contemporary Society
SW 180	Interpersonal Helping Skills
SW 233	Human Behavior in the Social Environment

Also (9 credits):

A minimum of nine elective credits of the following courses (three credits of which must be outside of the Department of Social Work):

SW 339	Human Sexuality
SW 344	Aging: Social Response and Implication
SW 355	Women in Society
SW 357	Child Welfare
SW 366	Addiction and Society
SW 401	Social Policy
SW 481	Independent Study
Mu 353	Music Therapy Techniques (2 credits)
Psy 108	Addictions (1 credit)
Psy 334	Exceptional Children and Youth

Directory

The Faculty

President

To be appointed.

Frederick F. Ritsch, *Provost, Dean of the Faculty, Professor of History*
B.A., M.A., Ph.D., University of Virginia (1984)

Richard R. Crocker, *Dean of College Life and Associate Professor of Religious Studies*
B.A., M.A., Brown University; M.Div., Ph.D., Vanderbilt University (1990)

Emeriti

Louise B. Black, *Associate Professor of English Emerita*
B.S., Elizabethtown College; M.S., Temple University (1968-1988)

I.L. Bossler, *Professor of Mathematics Emeritus*
B.S., Ursinus College; M.S., Purdue University (1959-1989)

Stanley Bowers, *Associate Professor of Education Emeritus*
B.S., Millersville State College; M.Ed., Temple University (1965-1990)

Anna M. Carper, *Director of the Library Emerita*
A.B., Elizabethtown College; M.S., Columbia University (1960-1986)

Hubert M. Custer, *Associate Professor of Physics Emeritus*
B.S., Carnegie Institute of Technology; M.S., Franklin and Marshall College (1953-61, 1963-1986)

Robert D. Dolan, *Associate Professor of Mathematics Emeritus*
B.S., California State College; M.A., West Virginia University (1964-1992)

J. Sue Dolan, *Assistant Professor of Business Emerita*
B.S., Elizabethtown College; M.Ed., Shippensburg State College (1974-1994)

Darrell R. Douglas, *Professor of Music Emeritus*
B.S., University of Minnesota; M.A., Arizona State University; D.M.A., University of Southern California (1972-1995)

Mark C. Ebersole, *President Emeritus*
B.S., LL.D., Elizabethtown College; B.D., Crozer Theological Seminary; M.A., University of Pennsylvania; Ph.D., Columbia University (1977-1985)

Charles S. Farver-Apgar, *Professor of Biology Emeritus*
B.S., M.S., Ph.D., University of Pittsburgh (1945-1967)

E. Margaret Gabel, *Assistant to the Director of the Library and Head Cataloguer Emerita*
B.S., Kutztown State Teachers College; M.S.L.S., Syracuse University (1966-1994)

Elizabeth M. Garber, *Professor of Political Science Emerita*
A.B., LL.D., Hood College; M.A., George Washington University; Docteur de l'Université, University of Paris (1966-1973)

Robert B. Garrett, *Assistant Professor of Health and Physical Education Emeritus*
B.S., East Stroudsburg State Teachers College; Ed.M., Temple University (1967-1988)

Vera R. Hackman, *Dean of Women Emerita*
A.B., Elizabethtown College; A.M., Columbia University; Professional Diploma, Teachers' College, Columbia University; L.H.D., Elizabethtown College (1944-1973)

Kathryn Nisley Herr, *Associate Professor of Modern Languages Emerita*
A.B., Lebanon Valley College (1943-1969)

Otis D. Kitchen, *Professor of Music Emeritus*
B.S., Bridgewater College; M.M., Northwestern University (1965-1996)

Donald E. Koontz, *Professor of Mathematics Emeritus*
B.S., Juniata College; M.A., Pennsylvania State University; Ed.D., Temple University (1961-1995)

Earl H. Kurtz, *Treasurer Emeritus*
B.S., Elizabethtown College; M.A., New York University; Ped.D., Elizabethtown College (1957-1978)

Henry M. Libhart, *Professor of Art Emeritus*
A.B., Franklin and Marshall College; Equivalent Master's Degree certificate, Commonwealth of Pennsylvania (1959-64, 1967-91)

J. Henry Long, *Associate Professor of Sociology Emeritus*
B.S., Elizabethtown College; M.A., Temple University; B.D., D.D., Bethany Theological Seminary (1969-1988)

Morley J. Mays, *President Emeritus*
A.B., Juniata College; A.M., University of Pittsburgh; Ph.D., University of Virginia; D.D., Bethany Theological Seminary; LL.D., Elizabethtown College; L.H.D., Albright College (1966-1977)

Donald L. Neiser, *Registrar Emeritus*
B.S., Elizabethtown College (1967-1986)

D. Kenneth Ober, *Associate Professor of Physical Education and Director of Athletics Emeritus*
B.S., M.S., West Chester State College (1972-1995)

Rollin E. Pepper, *Professor of Biology Emeritus*
A.B., Earlham College; M.S., Syracuse University; Ph.D., Michigan State University (1964-1990)

H. Herbert Poole, Jr., *Professor of History Emeritus*
B.A., Franklin and Marshall College; M.A., University of Pennsylvania; Ph.D., University of Delaware (1969-1996)

Zoe G. Proctor, *Professor of Chemistry Emerita*
B.S., Elizabethtown College; M.S., Bucknell University (1959-1996)

D. Paul Rice, *Professor of Education Emeritus*
A.B., Elizabethtown College; M.S., Ed.D., Temple University (1963-1995)

Elisabeth D. Shaw Russell, *Associate Professor of English Emerita*
B.A., M.A., Oxford University (1969-1988)

Carl N. Shull, *Professor of Music Emeritus*
B.S., Bridgewater College; M.M., Northwestern University; Ph.D., Florida State University (1961-1988)

Donald P. Smith, *Assistant Professor of Physical Education Emeritus*
B.S., University of Mississippi (1954-64, 1972-88)

Royal E. Snively, *Counselor Emeritus*
M.A., Ohio State University (1965-1990)

Armon C. Snowden, *Professor of Religion and Philosophy Emeritus*
A.B., Elizabethtown College; B.D., Crozer Theological Seminary; (1957-1986)

Martin O. L. Spangler, *Professor of Chemistry Emeritus*
B.A., Bridgewater College; M.S., Ph.D., Virginia Polytechnic Institute (1966-1993)

Gerhard E. Spiegler, *President Emeritus*
D.B., M.A., Ph.D., University of Chicago; LL.D., Elizabethtown College (1985-1996)

Stanley T. Sutphin, *Professor of Philosophy Emeritus*
A.B., La Verne College; B.D., Bethany Theological Seminary; Th.D., Pacific School of Religion (1963-1993)

Robert S. Young, *Director of Special Gifts Emeritus* (1950-1984)

Robert E. Ziegler, *Professor of Science Education Emeritus*
B.A., Bridgewater College; M.R.E., Bethany Seminary; M.S., Ph.D., University of Wisconsin (1966-1988)

The remaining faculty member listings indicate two dates. The date listed after the person's academic rank indicates date of appointment or promotion to that rank. The date listed after the institutions at which the person earned degrees indicates the date of original appointment to the faculty.

Professors

Ernest A. Blaisdell, Jr., *Professor of Mathematics*, (1980)

B.A., M.A., University of Maine; Ph.D., Temple University (1968)

Jay R. Buffenmyer, *Professor of Business* (1987)

B.S., Elizabethtown College; M.P.I.A., Ph.D., University of Pittsburgh (1976)

John A. Campbell, Jr., *Professor of English* (1970)

B.S., M.A., Ph.D., University of Florida (1968)

Eugene P. Clemens, *Professor of Religion* (1973)

B.A., Goshen College; M.A., Ph.D., University of Pennsylvania (1965)

Paul M. Dennis, *Professor of Psychology* (1992)

B.A., Bowdoin College; M.A., Ph.D., New School for Social Research (1968)

James L. Dively, *Professor of Biology* (1985)

B.S., M.S., Ph.D., Pennsylvania State University (1973) Sabbatical Leave, Fall 1996

J. Thomas Dwyer, *Professor of English* (1968)

A.B., M.A., Ph.D., University of Pennsylvania (1960)

Delbert W. Ellsworth, *Professor of Psychology* (1988)

A.B., University of California; M.A., San Francisco State College; Ph.D., University of California (1970)

Paul Gottfried, *Professor of Humanities* (1989)

A.B., Yeshiva University; M.A., Ph.D., Yale University (1989)

John F. Harrison, *Professor of Music* (1985)

B.M., M.M., Florida State University; Ph.D., Bryn Mawr College (1967)

J. Robert Heckman, *Professor of Biology* (1978)

B.S., Elizabethtown College; M.Ed., Millersville State College; Ph.D., Pennsylvania State University (1964) Sabbatical Leave, Spring 1997

Jack L. Hedrick, *Professor of Chemistry* (1973)

B.S., Elizabethtown College; M.S., University of Pittsburgh (1963)

Ian G. Hodge, *Sara Lodge Distinguished Professor of Business*, (1996)

B.A., University of Pennsylvania (1996)

Frederic E. Hoffman, *Professor of Biology, Clinical Professor in Science Education* (1982)

B.A., M.S., Ph.D., Syracuse University (1969)

Carroll L. Kreider, *Professor of Business* (1989)

B.S., Elizabethtown College; M.Ed., Pennsylvania State University (1969)

J. Kenneth Kreider, *Professor of History* (1972)

A.B., Elizabethtown College; M.A., Ph.D., Pennsylvania State University (1964) Sabbatical Leave, 1996-97

E. Fletcher McClellan, *Professor of Political Science* (1996), *Associate Dean of the Faculty*

B.A., Franklin and Marshall College; M.A., East Tennessee State University; Ph.D., The University of Tennessee (1982)

Robert C. Moore, *Professor of Communications* (1989)

B.S., Edinboro State College; M.S., Clarion State College; Ed.D., West Virginia University (1983).

Richard L. Mumford, *Professor of History and Clinical Professor in Social Studies Education* (1971)

A.B., University of Pennsylvania; M.Ed., Ph.D., University of Delaware (1965)

William V. Puffenberger, *Professor of Religion* (1974)

B.A., Bridgewater College; B.D., Bethany Theological Seminary; Ph.D., Boston University (1967).

John P. Ranck, *Professor of Chemistry* (1969)

B.S., Elizabethtown College; M.A., Ph.D., Princeton University (1963)

Carmine T. Sarracino, *Professor of English* (1991)

B.A., Rhode Island College; M.A., Ph.D., University of Michigan (1973)

Charles D. Schaeffer, Jr., *A.C. Baugher Professor of Chemistry* (1991)

B.A., Franklin and Marshall College; Ph.D., State University of New York at Albany (1976)

Theron F. Schlabach, *Senior Fellow, The Young Center*

B.A., Goshen College; M.S., Ph.D., University of Wisconsin (1995-97)

Wayne A. Selcher, *College Professor of International Studies and Director of the International Studies Program* (1982)

A.B., Lebanon Valley College; M.A., Ph.D., University of Florida (1969)

Ronald L. Shubert, *Professor of Mathematics* (1973)

B.S., Elizabethtown College; M.A., University of Kansas; Ed.D., Pennsylvania State University (1964)

Bela Vassady, Jr., *Horace E. Raffensperger Professor of History* (1983)

B.S., Pennsylvania State University; M.A., Ph.D., Temple University (1971)

Thomas R. Winpenny, *Professor of History* (1981)

B.A., M.A., Pennsylvania State University; Ph.D., University of Delaware (1968)

Associate Professors

Kurt M. Barnada, *Associate Professor of Modern Languages* (1995)

B.A., West Chester University; M.A., West Virginia University; Ph.D., Georgetown University (1988)

Jill Sunday Bartoli, *Associate Professor of Education* (1990)

B.A., M.A., University of Kentucky; M.Ed., Shippensburg State College; Ph.D., University of Pennsylvania (1990) Sabbatical Leave, 1996-97

Vivian R. Bergel, *Associate Professor of Social Work* (1993)

B.A., M.S.W., West Virginia University; Ph.D., University of Maryland at Baltimore (1987)

Cynthia Beyerlein, *Associate Professor of Public Administration* (1992)

B.S., Manchester College; M.B.A., St. Francis College; M.S., Widener University (1985)

Terry W. Blue, *Associate Professor of Education* (1996)

B.A., Juniata College; M.A. Temple University; Ph.D., Pennsylvania State University (1990)

Paula R. Boothby, *Associate Professor of Education* (1990)

A.B., Kalamazoo College; M.A., Western Michigan University; Ed.D., University of North Dakota (1990)

Christina A. Bucher, *Associate Professor of Religion* (1994)

A.B., Elizabethtown College; M.A.Th., Bethany Theological Seminary, Ph.D., Claremont Graduate School (1988)

Uldis Daiga, *Associate Professor of Modern Languages* (1973)

B.S., University of North Carolina; M.A., Temple University (1965)

Martha A. Eppley, *Associate Professor of Economics* (1971); *Associate Dean of the Faculty and Registrar* (1979)

B.S., Elizabethtown College; M.B.A., Indiana University (1964)

Hugh G. Evans, Jr., *Associate Professor of Economics* (1971)

B.S., Juniata College; M.A., Pennsylvania State University (1968)

Boyd Fox, *Associate Professor of Education* (1973)

B.S., M.S., Ed.D., Utah State University (1970)

Milton Friedly, *Associate Professor of Art* (1994)

A.A., Northwest Community College; B.F.A., Arizona State University; M.F.A., University of Wyoming (1987) Sabbatical Leave, Spring 1997

- George A. Gliptis**, *Associate Professor of Business* (1972)
B.S., J.D., University of Virginia (1970)
- Suzanne Schmidt Goodling**, *Associate Professor of Modern Languages* (1970)
B.A., Gettysburg College; M.A., Middlebury College (1964)
- Maurice R. Hoppie**, *Associate Professor of Economics* (1987)
B.A., Knoxville College; M.S., Ph.D., University of Tennessee (1980)
- Jacqueline L. Jones**, *Associate Professor of Occupational Therapy* (1987)
B.S., Milwaukee-Downer College; M.S., Florida International University; Ph.D., University of Illinois at Urbana/Champaign, OTR/L (1987)
- Yvonne E. Kauffman**, *Associate Professor of Physical Education* (1990)
B.S., Bridgewater College; M.Ed., West Chester State College (1966)
- John E. Koontz**, *Associate Professor of Mathematics* (1970)
B.S., Juniata College; M.A., Bowling Green State University (1966)
- Nancy J. Latimore**, *Associate Professor of Physical Education and Director of Athletics* (1995)
B.S., M.Ed., West Chester University (1995)
- Ronald L. Laughlin**, *Associate Professor of Biology* (1972)
B.A., Wabash College; M.S., Ohio State University (1968)
- Thomas R. Leap**, *Associate Professor of Computer Science* (1985)
B.S., Elizabethtown College; M.S., Ph.D., Lehigh University (1979)
- R. Bruce Lehr**, *Associate Professor of Sociology* (1966)
A.B., Bucknell University; M.A., Mexico City College (1961)
- Louis F. Martin**, *Associate Professor of English* (1994)
B.A., The University of the South; M.S., The University of Southern Mississippi; M.A.T., Ph.D., University of North Carolina, Chapel Hill (1988)
- Anthony M. Matteo**, *Associate Professor of Philosophy* (1991)
B.A., M.A., LaSalle College; Ph.D., Temple University (1986)
- W. Wesley McDonald**, *Associate Professor of Political Science* (1986)
B.A., Towson State College; M.A., Bowling Green State University; Ph.D., Catholic University of America (1980)
- Dana Gulling Mead**, *Associate Professor of English* (1995)
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- Robert K. Morse**, *Associate Professor of Mathematics* (1971)
B.S., Franklin and Marshall College; M.A., Temple University (1968)
- Stanley R. Neyer**, *Associate Professor of Business* (1972)
B.S., Elizabethtown College; M.B.A., Shippensburg State College; C.P.A. (1964)
- Jane E. Palmquist**, *Associate Professor of Music* (1994)
B.M.E., Northern State College; M.M., Ph.D., University of Texas at Austin (1990)
- Frank P. Polanowski**, *Associate Professor of Biology* (1981)
B.S., Wilkes College; M.Ed., Ph.D., Pennsylvania State University (1977)
- H. Marshall Pomroy**, *Associate Professor of Business* (1971)
B.S., Elizabethtown College; M.Ad., Pennsylvania State University; C.P.A. (1964)
- Raymond R. Reeder**, *Associate Professor of Chemistry* (1973)
B.S., Case Institute of Technology; Ph.D., Brown University (1969)
- Elizabeth A. Rider**, *Associate Professor of Psychology* (1995)
B.A., Gettysburg College; M.S., Ph.D., Vanderbilt University (1988) Sabbatical Leave, Spring 1997
- John C. Rohrkemper**, *Associate Professor of English* (1987)
B.A., M.A., Ph.D., Michigan State University (1981)
- Michael Severeid**, *Associate Professor of Theater* (1996)
A.B., Middlebury College; M.A., Central Missouri State University (1990)
- Donald E. Smith**, *Associate Professor of Communications* (1973)
B.S., M.S., State University of New York College at Geneseo (1969)
- John W. Stites**, *Associate Professor of Music* (1976)
B.S., Manchester College; M.M., Wayne State University (1968)
- Richard G. Stone**, *Associate Professor of Business* (1987)
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- William M. Stuckey**, *Associate Professor of Physics* (1993)
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- John A. Teske**, *Associate Professor of Psychology* (1990) B.A., Indiana University; M.A., Ph.D., Clark University (1986)
- Sharon R. Trachte**, *Associate Professor of Modern Languages* (1993)
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- Randolph L. Trostle**, *Associate Professor of Business* (1984)
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- Barbara C. Tulley**, *Associate Professor of Computer Science* (1989)
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- Hans-Erik Wennberg**, *Associate Professor of Communications* (1992)
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Assistant Professors

- Jane F. Cavender**, *Assistant Professor of Biology* (1994)
B.A., University of Delaware; M.S., Ph.D., Pennsylvania State University (1994)
- Carolyn F. Dillon**, *Assistant Professor of Psychology, part-time* (1992)
B.A., M.A., Ph.D., University of Delaware (1992)
- David C. Downing**, *Visiting Assistant Professor of English part-time* (1994)
B.A., Westmont College; M.A., Ph.D., University of California-Los Angeles (1994)
- Leota E. Dye**, *Assistant Professor of Communications* (1995)
A.A., Hutchinson Community College; B.S., M.A., Kansas State University; Ph.D., Pennsylvania State University (1992)
- Maria H. Frawley**, *Assistant Professor of English* (1992)
B.A., Bucknell University; M.A., Ph.D., University of Delaware (1992)
- Richard H. Gifford**, *Edgar T. Biting Assistant Professor of Accounting* (1995)
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- Thomas E. Hagan, Jr.**, *Assistant Professor of Chemistry* (1993)
B.S., Villanova University; Ph.D., University of Delaware (1993)
- James L. Haines**, *Assistant Professor of Music Therapy* (1994)
B.S., Elizabethtown College; M.M., West Chester University; Ph.D., University of Minnesota (1994)
- Patricia A. Hill**, *Assistant Professor of Business* (1988)
B.A., Gettysburg College; M.B.A., University of Baltimore (1988)

James R. Hughes, *Assistant Professor of Mathematics* (1995)
B.A., The Catholic University of America;
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Conrad L. Kanagy, *Assistant Professor of Sociology* (1994)
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Catherine E. Lemley, *Assistant Professor of Psychology* (1993)
B.A., Columbus College; M.A., Ph.D., Northeastern University (1993)

Link Martin, Jr., *Assistant Professor of Social Work and Director of Field Instruction* (1988)
B.S., Murray State University; M.S.W., University of Hawaii (1988)

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B.S., M.B.A., California State University/Sacramento; Ph.D., University of North Texas (1996)

Thomas E. Murray, *Assistant Professor of Biology* (1994)
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B.S., M.B.A., Indiana University; B.I.M., American Graduate School of International Management (1977)

Gabriela R. Sanchis, *Assistant Professor of Mathematics* (1991)
B.S., Syracuse University; M.A., Ph.D., University of Rochester (1991)

Lou Ellen Schellenberg, *Assistant Professor of Art* (1995)
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Michael Silberstein, *Assistant Professor of Philosophy* (1994)
B.A., M.A., Ph.D., University of Oklahoma (1994)

Bobette H. Thorsen, *Assistant Professor of Mathematics* (1993)
B.A., Brown University; M.S., Montana State University; Ph.D., University of California, Santa Cruz (1993)

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Instructors

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M.S., College of St. Francis, M.T. (ASCP)

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M.D., University of Pennsylvania School of
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Nadine Gladfelter, *Lancaster General Hospital*,
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Brenda Kile, *York Hospital*, York, Pa.
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B.S., University of Maryland; Catholic
University of America; S.M. (ASCP)

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Medicine

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Sharon Strauss, *Reading Hospital and Medical Center*, West Reading, Pa.
B.S., Kutztown University

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M.D., University of Rochester School of
Medicine

John P. Whiteley, *York Hospital*, York, Pa.
M.D., Temple University School of
Medicine

Louis Zinterhofer, *Monmouth Medical Center*,
Long Branch, N. J.
M.D., Tulane Medical School

Psychology

Ralph Norgran, Department of Psychology,
Hershey Medical Center, Hershey, Pa.
A.B., University of Pennsylvania, A.M.,
Ph.D. University of Michigan

Social Work

Margie Adelman, *First Step*, Harrisburg, Pa.
M.S.W., University of Pittsburgh

Greg Baiocchi, *Hershey Medical Center*,
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David H. Bender, *Lancaster County
Council on Alcoholism and Drug
Abuse*, Lancaster, Pa.
B.A., Boston College

Constance V. Bieling, *Gnaden Huetten
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M.S.W., Marywood College

Kay Eisenhour, *Catholic Charities
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Lynn G. Everhart, *Children's Playroom*,
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James Fuddy, *Hershey Medical Center*,
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Deborah Gadsden, *Lancaster County Children
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M.S.W., Temple University

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M.S.W.

Kevin Jacoby, *Hershey Medical Center*,
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Amanda Rosh, *Lancaster County Children and
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Cheryl Spazian, *Harrisburg Hospital*,
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Leann Weaver, *Masonic Homes*,
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M.S.W., Marywood College

Martin Yespe, *Crisis Intervention*,
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M.S.W., University of Maryland

Clinical Education Centers Occupational Therapy

Abington Memorial Hospital, Abington, Pa.

Allegheny General Hospital
Pittsburgh, Pa.

Allentown State Hospital, Allentown, Pa.

Allied Services, Scranton, Pa.

Altoona Hospital, Altoona, Pa.

Ancora Psychiatric Hospital
Hammon, N.J.

Bay Pines VA Medical Center
Bay Pines, Fla.

Betty Bacharach Rehabilitation Center
Pomona, N.J.

Baltimore VA Medical Center
Baltimore, Md.

Bergen Pines County Hospital
Paramus, N.J.

Binghamton Psychiatric Center
Binghamton, N.Y.

Bryn Mawr Rehabilitation Hospital
Malvern, Pa.

Carlisle Hospital, Carlisle, Pa.

Chambersburg Hospital,
Chambersburg, Pa.

Charlotte Hungerford Hospital
Tarrington, Conn.

Chestnut Hill Rehabilitation Hospital
Wyndmoor, Pa.

Children's Seashore House
Philadelphia, Pa.

Children's Hospital of Pittsburgh
Pittsburgh, Pa.

Children's Specialized Hospital
Mountainside, N.J.

Clearfield Hospital, Clearfield, Pa.

Clifton T. Perkin's Hospital Center, Jessup,
Md.

Coatesville VA Medical Center Coatesville, Pa.

Colonial Manor, York, Pa.

Community Hospital of Lancaster Lancaster,
Pa.

Crozier-Chester Medical Center, Chester, Pa.

Danbury Hospital, Danbury, Conn.

Danville State Hospital, Danville, Pa.

Deer's Head Hospital Center,
Salisbury, Md.

D. T. Watson Rehabilitation Hospital,
Sewickley, Pa.

Alfred I. duPont Center, Wilmington, Del.

Eagleville Hospital and Rehabilitation Center,
Eagleville, Pa.

Eastern Pennsylvania Psychiatric Institute
Philadelphia, Pa.

Eastern State Hospital, Williamsburg, Pa.

Easton Hospital, Easton, Pa.

Ephrata Community Hospital, Ephrata, Pa.

Fallston General Hospital, Fallston, Md.

Fort Howard VA Medical Center
Fort Howard, Md.

Francis Scott Key Medical Center
Baltimore, Md.

Freehold Area Hospital, Freehold, N.J.

Geisinger Rehabilitation Hospital, Danville,
Pa.

Geisinger-Wyoming Valley Medical Center,
Wilkes-Barre, Pa.

Georgetown University Hospital,
Washington, D.C.

Gnaden Huetten Memorial Hospital,
Lehigh, Pa.

Good Samaritan Hospital, Baltimore, Md.

Good Samaritan Hospital, Lebanon, Pa.

Good Shepherd Home & Rehabilitation,
Hospital, Allentown, Pa.

Great Lakes Rehabilitation Hospital,
Erie, Pa.

Hagedorn Center for Geriatrics,
Glen Gardner, N.J.

Hannemann University Hospital,
Philadelphia, Pa.

Harrisburg Hospital, Harrisburg, Pa.

Harrisburg Institute of Psychiatry,
Harrisburg, Pa.

Harrisburg State Hospital, Harrisburg, Pa.

Harmarville Rehabilitation Center,
Pittsburgh, Pa.

Heatherbank Rehabilitation Center,
Columbia, Pa.

Health South Rehabilitation Center, York, Pa.

Health South Rehabilitation Mechanicsburg
Mechanicsburg, Pa.

Highland Health Facility, Baltimore, Md.	Mt. Washington Pediatric Hospital, Baltimore, Md.	Saint Luke's Hospital, Bethlehem, Pa.
Hillside Hospital, Glen Oaks, N.Y.	National Rehabilitation Hospital, Washington, D.C.	Saint Margaret Memorial Hospital Pittsburgh, Pa.
Holy Spirit Hospital & Mental Health Center, Camp Hill Pa.	New York University–Cornell Medical Center, White Plains, N.Y.	Saint Vincent Hospital and Medical Center, New York, N.Y.
Homestead Nursing and Rehabilitation Center, Willow Grove, Pa.	Norristown State Hospital, Norristown, Pa.	San Francisco General Hospital, San Francisco, Calif.
Hospital of the University of Pennsylvania, Philadelphia, Pa.	Options, Lancaster, Pa.	Sinai Hospital, Baltimore, Md.
Howard County General Hospital, Columbia, Md.	Our Lady of Lourdes Hospital, Camden, N.J.	Southern Hills Regional Rehabilitation, Hospital, Princeton, W.Va.
Institute of Pennsylvania Hospital, Philadelphia, Pa.	Penn Foundation for Mental Health, Sellersville, Pa.	Springfield Hospital Center, Sykesville, Md.
Institute of Psychiatry & Human Behavior University of Maryland, Baltimore, Md.	Philadelphia Psychiatric Center, Philadelphia, Pa.	SUNY Health Science Center, Syracuse, N.Y.
Institute of Living, Hartford, Conn.	Philadelphia VA Medical Center, Philadelphia, Pa.	Taylor Hospital, Ridley Park, Pa.
Jefferson Hospital, Pittsburgh, Pa.	Philhaven Hospital, Lebanon, Pa.	Temple University Hospital, Philadelphia, Pa.
John Heinz Institute, Wilkes-Barre, Pa.	Polyclinic Medical Center, Harrisburg, Pa.	The Sheppard and Enoch Pratt Hospital, Baltimore, Md.
Johns Hopkins Hospital of Baltimore, Baltimore, Md.	Pottstown Memorial Hospital, Pottstown, Pa.	Thomas B. Finan Center, Cumberland, Md.
Kessler Institute for Rehabilitation, West Orange, N.J.	Presbyterian University Hospital, Pittsburgh, Pa.	Thomas Jefferson University Hospital, Philadelphia, Pa.
Lancaster General Hospital, Lancaster, Pa.	Reading Hospital & Medical Center, West Reading, Pa.	Trenton Psychiatric Hospital, West Trenton, N.J.
Lebanon VA Medical Center, Lebanon, Pa.	Reading Rehabilitation Hospital, Reading, Pa.	Truckee Meadow's Hospital, Reno, Nev.
Louden Memorial Hospital, Leesburg, Va.	Rehabilitation Hospital for Special Services, Mechanicsburg, Pa.	University Hospital, Hershey, Pa.
MCD Christiana Hospital, Newark, De.	Rehabilitation Hospital for Special Services, York, Pa.	University of Virginia Medical Center, Charlottesville, Va.
McLean Hospital, Belmont, Mass.	Rehabilitation Hospital for Special Services of Nittany Valley, Bellefonte, Pa.	V.A. Medical Center, West Haven, Conn.
Magee Rehabilitation Hospital, Philadelphia, Pa.	Rehabilitation Hospital of Altoona, Altoona, Pa.	Walnut Creek Hospital, Walnut Creek, Calif.
Marlboro State Hospital, Marlboro, N.J.	Rehabilitation Institute of West Florida, Pensacola, Fla.	Warren State Hospital, Warren, Pa.
Maryland General Hospital, Baltimore, Md.	Robert Wood Johnson Institute, Edison, N.J.	Washington County Hospital Association, Hagerstown, Md.
Maryland Rehabilitation Hospital, Baltimore, Md.	Rockland Psychiatric Center, Orangeburg, N.Y.	Washington Hospital, Washington, Pa.
Meadville Medical Center, Meadville, Pa.	Rolling Hills Hospital, Elkins Park, Pa.	Way Station, Inc., Frederick, Md.
Medcenter One, Bismark, N. Dak.	St. Agnes Hospital, Baltimore, Md.	WNY Children's Psychiatric Center West Seneca, N.Y.
Medical Center of Delaware, Wilmington, Del.	Saint Francis Medical Center, Pittsburgh, Pa.	Welkind Rehabilitation Hospital Chester, N.J.
Medical Center at Princeton, Princeton, N.J.	Saint John's Hospital, Pittsburgh, Pa.	Wernersville State Hospital Wernersville, Pa.
Mercy Hospital, Pittsburgh, Pa.	Saint Joseph Hospital, Lancaster, Pa.	Western State Hospital, Staunton, Va.
Meridia Euclid Hospital, Euclid, Oh.	Saint Joseph Hospital, Reading, Pa.	Williamsport Hospital, Williamsport, Pa.
Montebello Hospital, Baltimore, Md.	St. Joseph's Hospital & Rehabilitation Center, Tacoma, Wash.	Woodrow Wilson Rehabilitation Center, Fishersville, Va.
Montevista Center, Las Vegas, Nev.	Saint Lawrence Rehabilitation Center, Lawrenceville, N.J.	Youville Hospital, Cambridge, Mass.
Montgomery General Hospital, Olney, Pa.	Saint Joseph's Medical Center, Yonkers N.Y.	Washington County Hospital Association, Hagerstown, Md.
Morristown Memorial Hospital, Morristown, N.J.		Washington Hospital, Washington, Pa.
Moss Rehabilitation Hospital, Philadelphia, Pa.		Way Station, Inc., Frederick, Md.
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WNY Children's Psychiatric Center,
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The Administration

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